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MICROLEPIDOPTERA OF CUBA

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During the last few years considerable careful rearing of Microlepidoptera has been done by the "Departamento de Entomología" of the "Estación Experimental Agronómica" at Santiago de las Vegas, Cuba.

This rearing has been done partly by my friend, the able chief of the Department, Dr. S. C. Bruner, but more especially at his direction by Mr. Angel R. Otero, who is particularly successful in collecting and caring for larval material and in rearing it to the adult stage in perfect specimens.

I am very grateful to both of these gentlemen for placing in my hands this valuable material, which much more than doubles our knowledge of the Cuban fauna of Microlepidoptera.

Only a small part of Mr. Otero's reared species have been dealt with in this paper; the balance will be treated in a subsequent installment.

Aside from its great technical interest, it is important to make this knowledge available in printed form because the collection embraces several actual and potential economically injurious species, which, owing to Cuba's proximity to the United States, may easily become introduced here.

In this paper is also included such other Cuban material as has accumulated in U. S. National Museum from other sources, notably species reared and collected for the "Estación Experimental," Central Baraguá, by Mr. L. C. Scaramuzza and Mr. H. K. Plank,

the latter of whom was so kind as to do some light collecting at my suggestion. Most of the earlier Cuban material available was collected by Dr. Wm. Schaus and by the writer.

Two new genera and twenty-five new species are described in this paper, and fifteen genera and species are recorded for the first time from Cuba. The food-plant records of a large number of these species are of particular value.

The writer is under obligation to Mrs. Eleanor A. Carlin, of the U. S. Bureau of Entomology, for her careful drawings made under his direction from slides prepared by him.

All types and cotypes are deposited in the U. S. National Museum; a duplicate set of the same rearings is in the Agricultural Station's collection in Santiago de las Vegas.

Mr. Otero will give more detailed notes on the early stages of the reared species in a separate paper.

FAMILY PTEROPHORIDAE

Exelastis pumilio Zeller

Mimesoptilus pumilio Zeller, Verh. Zool. bot. Gesell. Wien., vol. 23, p. 324, 1873.

Mimaeseoptilus gilvidorsis (not Zeller) Hedemann, Stett. Ent. Zeitg., vol. 57, p. 8, 1896.

Stenoptilia? *pumilio* Walsingham, Proc. Zool. Soc. London, p. 58, 1897; Meyrick, Gen. Insect. Fasc. 100, p. 18, 1910.

Marasmarcha liophanes Meyrick, Trans. Ent. Soc. London, p. 19, 1886; Gen. Insect. Fasc. 100, p. 18, 1910.

Marasmarcha pumilio Barnes and Lindsey, Contr. Nat. Hist. Lep., vol. 4, p. 348, pl. 13, fig. 7, 1921; Forbes, Sci. Surv. Porto Rico, vol. 12, p. 78, 1930.

Exelastis pumilio Fletcher, Cat. Ind. Ins., part 20, p. 38, 1931.

This cosmopolitan tropical species was reared by Dr. Bruner from larvae feeding on *Meibomia* at Santiago de las Vegas, Cuba. (Otero No. 9455.)

FAMILY TORTRICIDAE

Amorbia phaseolana Busek

Amorbia phaseolana Busek, Bruner, Informe Dept. Entomology Santiago de las Vegas, Cuba, p. 23, 1931.

This species was described from two males reared from Lima bean, to which crop it had become a pest of some economic importance. Since then I have received a good series of both sexes from

Mr. Otero reared from leaf-tying larvae on *Psidium* (Guava) and *Althaea* (Otero, No. 9524), proving the species as indiscriminate in its choice of foodplants, as are the other species of the genus. The females, as predicted, are considerably larger than the males, measuring 25 mm. in alar expanse. Genitalia of both sexes (pl. XXX, fig. 4, and pl. XXXVI, fig. 8) are typical of the genus.

Apotoforma new genus

Genotype. — *Oxygrapha rotundipennis* Walsingham (West Indies).

Antennae of male, half the length of the forewings, shortly ciliate on the underside, thickened with scales, and with a circle of erect scales on each joint. Labial palpi short porrect, second joint thickened with protruding rough scales towards apex, terminal joint short. Face smooth, clothed with very short scales, head with rough scaling; thorax smooth. Forewings with raised scales, without costal fold in the male, elliptical; costa and dorsum gently and evenly rounded and meeting in the longitudinal center of the wing in an undefined evenly rounded apex; 12 veins; vein 6 to the tip of the wing or a little above it; 7 to costa; 8, 9, 10, and 11 well separated, nearly equidistant; 5 straight; 3 and 4 long-stalked; 2 from middle of cell; *lc* present in its entire length. Hindwings as broad as forewings, trapezoidal; costa and dorsum straight, parallel, termen nearly straight, apex bluntly pointed; 7 veins; 3 and 4 united; 5 approximate; 6 and 7 closely approximate throughout basal third of their length, enclosing apex. (Pl. XXX, figs. 2 and 3.)

Male genitalia with uncus and socii absent; gnathos flattened in center and with a narrow ventral plate along underside of the alimentary canal to the tip of the tegumen; transstilla a narrow curved band; harpes nearly divided, with a strongly chitinized broad bifurcate sacculus and a longer flimsy pointed costal part; aedeagus short, truncate, bilobed at apex; cornuti six equal rather long and slightly curved spines. (Pl. XXX, fig. 1.)

Female genitalia with base of ovipositor lobes thickened, upturned; ductus short, looped just before bursa; bursa elongate oval, without signum. (Pl. XXXVI, fig. 9.)

This remarkable genus is clearly a development from *Peronea* and has its counterpart in the Indian genus *Paratorna* Meyrick, which has an even more extravagant development of the forewings, with costa further deflected, so as to bring vein 5 to apex. The present genus differs also from *Paratorna* in having only 7 veins in

the hindwings, with 3 and 4 united, not stalked: the male genitalia substantiate the common origin from *Peronea*.

The related genus *Eboda* Walker in which Meyrick has placed the genotype, *rotundipennis*, agrees with the present genus in venation, but it has a very different wing form and possesses curiously developed socii.

Apotoforma rotundipennis Walsingham

Oxygrapha rotundipennis Walsingham, Proc. Zool. Soc. London, p. 132, 1897.

Eboda rotundipennis Meyrick, Gen. Ins. Fasc. 149, p. 59, 1913.

Paratorna rotundipennis Forbes, Sci. Surv. Porto Rico, vol. 12, p. 83, 1930.

Labial palpi ochreous white, touched with brown, terminal joint brown. Antennae dark golden fuscous. Lower half of face ochreous white; upper half and head dark brown. Thorax light ochreous brown. Forewings light ochreous brown; costal edge reddish brown; just before the middle of costa a broad outwardly oblique costal streak, diffused outwardly; at apical fifth another dark brown, outwardly curved streak, parallel and close to the apical edge and reaching below the tip of the wing. At basal third two obliquely placed small tufts of raised black scales; two similar but smaller tufts on fold, and two at the end of the cell; cilia light ochreous brown. Hindwings light ochreous fuscous with ochreous cilia; abdomen fuscous. Legs ochreous, broadly barred with dark fuscous.

In the U. S. National Museum are specimens from Havana, Cuba, C. F. Baker coll., and also reared series from *Acacia*, Ft. Prince, Florida (E. W. Berger), and Gainesville, Florida (T. L. Cain).

Alar expanse.—10–11 mm.

Type.—British Museum.

Type locality.—St. Thomas, West Indies.

Foodplant.—*Acacia arabica*.

Ancyliis cordiae new species

Second joint of labial palpi with strong tuft, concealing terminal joint; white at base, light brown at apex, with a small black spot on outer side. Face light ochreous. Head light ochreous brown. Antennae light brown with a black dot on underside of second joint. Thorax light brown. Forewings with strongly produced falcate apex, termen

sharply sinuate below; light whitish brown with a large triangular dark brown spot resting on dorsal edge from base to apical fourth; base of costa dark brown with a violet sheen; costal edge darker brown with a series of nearly equidistant silvery geminate streaklets; three equidistant small black dots in a row on basal third; dorsal half of apical part of wing mottled with black scales; apex brown edged with white; cilia light brown. Hindwings light fuscous with a violet sheen. Abdomen dark fuscous above with silvery underside and ochreous genital tuft. Legs strongly tufted, light ochreous with dark brown tarsal annulations.

Male genitalia (pl. XXX, fig. 6) without defined uncus; socii large, pendant; cucullus triangular, heavily spined on outer edge and with a single stronger spine on basal corner; aedoeagus long, straight, sharply pointed; cornuti a large bunch of many long slender spines.

Alar expanse.—13 mm.

Type.—U. S. National Museum Cat. No. 44132.

Type locality.—Santiago de las Vegas, Cuba.

Foodplants.—*Cordia globosa* and *Gouania polygama* (Otero No. 9721, leaf-tyer).

Ancylis bauhiniae new species.

Labial palpi smooth, blackish brown, base and inner sides ochreous. Lower face smooth, silvery white. Head blackish brown. Antennae with basal fifth and outer half blackish brown, separated by a wide cream-white band, last joint white. Anterior third of thorax and shoulder-flaps blackish brown, rest of thorax ochreous white. Forewings ochreous white; outer half yellowish, mottled with metallic leaden scales; a large, semicircular, blackish brown dorsal spot from basal fifth to beyond middle of dorsum and reaching two-thirds the width of the wing; extreme base of costa blackish brown; outer two-thirds of costa narrowly light reddish-brown with alternating oblique white and metallic leaden streaklets; below this a longitudinal whitish streak, finely irrorated with transverse black streaklets; this streak is continued into a perpendicular white patch with black transverse lines; beyond this apical edge is light reddish-brown with a short silvery streak on the middle of termen before the light ochreous brown cilia. Hindwings dark fuscous with lighter cilia. Abdomen dark fuscous, with underside slightly lighter. Anterior legs blackish brown; posterior legs smooth silvery fuscous; tarsi with narrow ochreous annulations. The male genitalia (pl. XXX, fig. 7) with short, pointed, hairy

uncus, well developed pending socii, evenly rounded cucullus, aedeagus long, nearly straight, cornuti a bunch of (7-8) long slender spines.

Alar expanse.—9-11 mm.

Type.—U. S. National Museum Cat. No. 44133.

Type locality.—Santiago de las Vegas, Cuba.

Foodplant.—*Bauhinia heterophylla*. (Otero No. 9719.)

This very striking species is somewhat divergent in the genus because of its smooth palpi and legs and the close proximity at base of veins 7 and 8 in forewings, but other characters and the pattern and general habitus are clearly those of *Ancylis*.

Strepsicrates smithiana Walsingham

Strepsicrates smithiana Walsingham, Proc. Zool. Soc. London, p. 506, 1891; idem, p. 127, 1897; Wolcott, Journ. Dept. Agr. Porto Rico, vol. 8, p. 202, 1917; Forbes, Sci. Surv. Porto Rico, vol. 12, p. 91, 1931.

Reared by Mr. Otero (No. 9468) from Guava, *Psidium guajava*, at Santiago de las Vegas, Cuba.

Gymnandrosoma pithecolobiae new species

Labial palpi black, slightly sprinkled with white scales on basal two-thirds of second joint and with extreme tip of terminal joint white. Maxillary palpi minute, white. Face black, in the male with lower third pure white; in the female sparsely sprinkled with white. Head dark brown.

Antennae less than half of wing length, stout, simple in the female, in the male ciliate and with basal sixth to sixteenth joints scooped out above to about half their thickness in a shallow notch. Thorax blackish brown with a central transverse band of reddish brown and with posterior tuft white. Forewings dark brown profusely mottled with black, bluish, reddish, and white iridescent scales, extreme costal base black, basal half of wing somewhat darker than apical half, containing more black scales, which tend to form irregular transverse lines; apical half of costa with small, indistinct, geminate ochreous spots; at end of cell a pure white dot; cilia bluish black mixed with brown. Hindwings blackish brown with lighter fuscous cilia; in the male with a large, strongly tufted pouch on base of dorsum, closely covering the posterior tibia when the moth is at rest and containing a long ochreous hair-tuft and a patch of short modified yellow scales. Legs blackish brown, with narrow ochreous annulations, tuft on posterior tibiae yellowish.

Male genitalia (Pl. XXX, fig. 5) very similar to those of the genotype and other species in the genus, but differing from all of them in the much more excavated neck and more pronounced and pointed base of cucullus. Female genitalia nearly identical with those of the other described species, with the same chitinized parts of the ductus, and with signum two strong curved thorns rather more slender than in the other closely allied species.

Alar expanse.—16 mm.

Type.—U. S. National Museum Cat. No. 44134.

Type locality.—Santiago de las Vegas, Cuba.

Foodplant.—*Pithecolobium*. (Otero No. 9601, "feeding in the seeds.")

The five described species of this genus are closely allied and very similar in coloration and structure. The present species agrees with *Gymnandrosoma aurantica* Costa Lima, in the notched male antennae, not present in the other three species; Dr. Da Costa Lima was so kind as to send me a male cotype of his species, reared from orange in Brazil; from this species the present may most easily be distinguished by the white thoracic tuft and by the details of the male genitalia. There is, however, another undescribed species of this genus, feeding on Guava in Porto Rico, which also has a white thoracic tuft, and which presumably also will be found to occur in Cuba.

FAMILY MOMPHIDAE

Stilbosis lonchocarpella new species

Labial palpi yellowish white, so strongly mottled with black scales as to appear dark. Face silvery. Head blackish brown. Thorax blackish brown with silvery posterior tip. Forewings light ochreous, mottled with shining blackish brown; extreme base blackish brown; beyond this, basal half of wing unmottled ochreous, except for a tuft of erect brown scales at basal fourth and the costal edge, which is strongly suffused with dark brown; this basal area is edged by two tufts of erect scales, the upper and slightly preceding ochreous, the lower and larger blackish brown; beyond these is an ill-defined broad transverse fascia, heavily overlaid with blackish brown and edged exteriorly by two tufts of erect blackish brown scales tipped with ochreous; a small less mottled ochreous area intervenes before the apical fifth of the wing, which is mixed black brown, with a metallic sheen; cilia dark fuscous. Hindwings and cilia lighter fuscous.

Abdomen shiny dark fuscous with light ochreous underside. Legs blackish brown with narrow white annulations.

Male and female genitalia typical of the genus, at once placing the species with the North American genotype, *S. tesquella* Clemens.

Alar expanse.—8–10 mm.

Type.—U. S. National Museum Cat. No. 44135.

Type locality.—Santiago de las Vegas, Cuba.

Foodplant.—*Lonchocarpus sericeus*. (Otero No. 9712.)

The larvae are leaf-tyers and very similar to those of *S. tesquella*, white with tubercles small jet black dots.

FAMILY GELECHIIDAE

Nealyda pisoniae Busck

Nealyda pisoniae Busck, Proc. U. S. Nat. Mus., vol. 23, p. 229, pl. 1, fig. 5, 1900; Dyar, Proc. Ent. Soc. Wash., vol. 4, p. 470, 1901; List N. Amer. Lepid., No. 5569, 1903; Barnes and McDunnough, List Lepid. Bo. Amer., No. 6091, 1917.

This interesting species, described from Palm Beach, Florida, and not hitherto recorded outside the type locality, was reared both by Mr. Otero (No. 9592) and by Mr. L. C. Scaramuzza (No. 3913) from *Pisonea aculeata*.

The larva makes large irregular blotch mines on the upper surface of the leaf; when mature it cuts its way out and spins a tough, oval, flat, white cocoon near by.

The genitalia of both sexes are typical of the genus. The male genitalia of the genotype, *Nealyda bifidella* Dietz, drawn by Mr. Harry Bradford of the U. S. Bureau of Entomology, are given (Pl. XXXI, figs. 1 and 2). The present species differs from it in having the aedoeagus longer and slenderer, the lower arm of the harp reduced to a strong curved spine, and the upper arm of the harp with a stout spine on inner side. The female genitalia of the present species have the ductus bursae longer and the signum much longer than in the genotype.

Tholerostola evippella Forbes

Tholerostola evippella Forbes, Journ. Dept. Agr. Porto Rico, vol. 15, p. 364, 1931.

Described from collected specimens in Porto Rico. Mr. Otero has reared a large series of this species from leaves of *Aeschynomene americana* at Santiago de las Vegas, Cuba. (Otero No. 9407.) The

genus differs in venation from *Evippe* Chambers only in having vein 6 of forewing separate from 7 and 8.

Aristotelia eupatoriella new species

Labial palpi very long and slender, terminal joint longer than second, light ochreous, second joint with three incomplete broad dark brown annulations, terminal joint with four such annulations. Antennae blackish brown with first joint ochreous and with two longitudinal ochreous lines, consisting of single scales, two on each joint. Face light ochreous. Head and thorax light brown, mottled with black scales. Forewings with costal half light ochreous, heavily powdered with black and with black markings; near base a broad black fascia reaching to the fold, edged outwardly by a nearly unmottled, outwardly oblique, ochreous fascia reaching faintly to the dorsal edge; this is followed on basal third by a black fascia reaching to the fold and continued outwards on the cell; at apical third a predominantly black area, containing a small unmottled, ochreous costal dash and followed by a larger conspicuous light ochreous costal dash, also present on the otherwise dark brown underside of the wing; this light dash is in turn followed by an unmottled blackish brown spot just before the apex; dorsal half of the wing dark brown, sparsely sprinkled with dark scales, crossed at basal third by the light ochreous fascia and edged towards the second black costal fascia by a light ochreous longitudinal line; on the underside of the forewings in the male, near base of costa, a strong tuft of long yellow hairs and another more basally of short black hairs. Hindwings light ochreous with base and two longitudinal broad lines of deep black scaling reaching from near base nearly to termen, the upper one broader and longer than the lower and separated from it by a thin line of the ground color (Pl. 2, fig. 8); the basal patch is repeated on the underside of the wing, the basal half of which is clothed by semierect velvety scaling. Abdomen light ochreous with the three first joints velvety black above. Legs yellowish with broad black bars; tarsi black with narrow ochreous annulations. The females have no costal hair pencil at base of forewing, the hindwings are dark fuscous above with ochreous underside.

Male and female genitalia typical of the genus (Pl. XXXI, figs. 3, 4, and 6.)

Alar expanse.—10–11 mm.

Type.—U. S. National Museum Cat. No. 44136.

Type locality.—Santiago de las Vegas, Cuba.

Foodplant.—*Eupatorium villosum*. (Leaf-tyer, Otero No. 9847.)

The remarkable sex-scaling of the male at once differentiates this species from the several others of this immediate *roseosuffusella* group (*Eucatoptus*).

Anacampsis meibomiella Forbes

Anacampsis (*Compsolechia*) *meibomiella* Forbes, Journ. Dept. Agr. Porto Rico, vol. 15, p. 376, pl. 42, fig. 16, 1931.

Described from Mr. Otero's specimens No. 9454, reared from *Meibomia*, Santiago de las Vegas, Cuba. The figure number in the text is mistakenly given as 17, which represents *Anacampsis melanophala*, a very different insect; it should be fig. 16, as correctly given in the explanation of plate 47.

Polyhymno luteostrigella Chambers

Polyhymno luteostrigella Chambers, Can. Ent., vol. 6, p. 247, 1874; Washington, Trans. Ent. Soc. London, p. 95, pl. 7, fig. 78, 1892; Proc. Zool. Soc. London, p. 77, 1897; Busck, Proc. U. S. Nat. Mus., vol. 25, p. 839, pl. 31, fig. 26, 1903; Meyrick, Gen. Ins., Fasc. 184, p. 105, 1925; Forbes, Sci. Surv. Porto Rico, vol. 12, p. 123, 1930.

Reared by Dr. Bruner from *Cassia chamaechrista* (No. 9423) at Santiago de las Vegas, Cuba. The species feeds on the same foodplant in Eastern and Southern United States.

Gnorimoschema lycopersicella Busck

Phthorimaea lycopersicella Busck. Proc. Hawaiian Ent. Soc., vol. 7, p. 171, pl. 2, 3, 1928; Swezey, idem, p. 177, 1928; Campbell and Elmore, Calif. Mo. Bull., vol. 20, p. 458, 1931.

Gnorimoschema lycopersicella Busck, Proc. Ent. Soc. Wash., vol. 33, p. 60, 1931; Thomas, Journ. Econ. Ent., vol. 25, p. 137, 1932.

Reared by Mr. Otero from larva mining on leaves of eggplant. (No. 9848.) The species, described from the Hawaiian Islands, where it is an introduced species, has been recorded from California, several localities in Mexico, both east and west, and from Pennsylvania. Its original foodplant is wild *Solanum*, but it occasionally becomes of some economic importance by injuring cultivated Solanaceous crops like tomatoes and eggplant.

Prostomens brunneus Busek

Prostomens brunneus Busek, Proc. U. S. Nat. Mus., vol. 25, p. 838, pl. 31, fig. 25, 1903; Meyrick, Gen. Ins., Fasc. 184, p. 140, 1925.

This curious species (Genotype) had not been received since it was described thirty years ago from Florida and it is very gratifying that Mr. Otero has not only re-discovered it in Cuba, but also found its foodplant; the species is a leaf-tyer on Guava, *Psidium guajaba*. (Otero No. 9637.)

Trichotaphe melissia Walsingham

Dichomeris melissia Walsingham, Biol. Cent. Amer., vol. 4, p. 97, 1911.

Cymotricha melissia Meyrick, Gen. Ins., Fasc. 184, p. 189, 1925.

Lecithocera emigrans Meyrick, Exot. Micros., vol. 2, p. 435, 1921.

Brachmia emigrans Meyrick, Gen. Ins., Fasc. 184, p. 249, 1925.

Trichotaphe (Onebala) melissia Forbes, Journ. Dept. Agr. Porto Rico, vol. 15, p. 373, 1931.

A somewhat variable common species with wide distribution in the American tropics. The natural foodplant is *Ipomoea*, from which Mr. Otero reared the species in Cuba (Otero No. 9442) but the species is occasionally injurious to sweet potato. The writer has reared the species from both wild and cultivated plants in Barbados, guided by my late friend, John R. Bovell, at that time Director of Agriculture on the island, who informed me that he had sent the species to Mr. Meyrick and received the name *emigrans*, thus enabling the synonymy. The type series of *D. melissia* in the U. S. National Museum came from Panama (Busek).

We have the species also from Perú, where it is reported an economically important pest of sweet potato.

FAMILY OECOPHORIDAE

Hypercallia bruneri new species

Labial palpi and antennae rose-pink. Face, head, and thorax yellowish brick-red with pink edges. Forewings light brick-red with costal and apical edges rose-pink; a canary yellow round dot on the middle of the cell; another similar one on the end of the cell; a small triangular, yellow costal spot on apical fourth; terminal cilia from just below apex to

just above tornus light canary yellow, dorsal cilia pink. Hindwings and cilia light rose-pink. Abdomen above light reddish brown, underside yellowish. Legs light yellow, tibia rose-pink on the outer side; last tarsal joints pink.

Alar expanse.—18 mm.

Type.—U. S. National Museum Cat. No. 44137.

Type locality.—Baracoa, Cuba; S. C. Bruner, collector.

It gives me pleasure to name this strikingly beautiful species in honor of its collector, my friend Dr. S. C. Bruner, who has added much to the knowledge of Cuban insects.

FAMILY STENOMIDAE

Stenoma comma Busek

Stenoma comma Busek, Proc. U. S. Nat. Mus., vol. 40, p. 218, pl. 8, fig. 11, 1911; Meyrick, Exot. Micros., vol. 1, p. 509, 1916.

Stenoma melancrypta Meyrick, Exot. Micros., vol. 1, p. 455, 1915.

Part of the type series of this species came from Cuba (Schaus coll.). The species is also found in the Guianas, and, according to Dr. Forbes, in Porto Rico. We have the species in both sexes from Sierra Maestro, Cuba, 1,000 feet alt. (O. Querci, coll.), from which the figures of genitalia are drawn. (Pl. XXXI, figs. 5 and 7.)

The male of this pretty species is at once recognized by the black comma-like scaling near the base of the hindwings.

Stenoma ocella Forbes

Mothonica ocella Forbes, Sci. Surv. Porto Rico, vol. 12, p. 130, figs. 3, 8, 1930.

This species is uncomfortably close to *Stenoma fluminata* Meyrick (Trans. Ent. Soc. London, p. 716, 1912), described from Dutch Guiana and subsequently recorded from Brazil and Columbia (Meyrick, Ann. Nat. Mus. Wien, vol. 44, p. 253, 1930); without examination of the genitalia, *occella* Forbes would be considered a synonym of Meyrick's earlier name. The genitalia also are very similar, but *fluminata* has a narrower, longer sacculus projecting beyond the edge of the cucullus, and has the uncus distinctly bifid, while in *occella* the latter is simple and the sacculus is broad and short, not reaching the outer edge of the cucullus. The lower edge of the vinculum in *fluminata* is distinctly and rather deeply bilobed, while in *occella* this edge is very evenly rounded. (Not shown in Forbes's figure.)

Forbes evidently placed his species in *Mothonica* on its general resemblance to the figure of the genotype, *M. periapta* Walsingham (Biol. Cent. Amer., vol. 4, p. 153, pl. 5, fig. 30, 1912).

It does not agree structurally with Walsingham's generic description, which lays stress on the stalked veins 8 and 9 in the forewing and the approximate (not stalked) veins 6 and 7 of the hindwing, while Forbes's species has the former separate and the latter stalked. These venational characters are, however, not dependable in the family *Stenomidae*, where classification will ultimately have to be recast on characters of the genitalia; these are very diversified in the family and enable excellent grouping of the more than one thousand species already described and at present lumped in the genus *Stenoma*. When this is done it is quite possible that the name *Mothonica* may be available for the group with the general type of genitalia represented by the present species, but as the genus was founded on a single female without abdomen, which first must be properly re-identified with corresponding males, and as it is very uncertain that this genotype really belongs to the same group as Meyrick's and Forbes's species, it seems a little "mothonicos" to apply Walsingham's name to species which do not agree with the main characters depended upon by the author of the genus; I prefer to follow Meyrick including them in the present waste-basket, *Stenoma*, until the family is revised.

The figure given by Forbes would indicate that the signum of the female is a single spiny plate, but the species has two such signa, as is the rule in the family, very much as in the figure given here for *Stenoma comma* Busek. In other species of the family the two are commonly connected by a narrow spiny band.

FAMILY ETHMIIDAE

Ethmia confusella Walker

Hyponomeuta confusellus Walker, Cat. Lep. Brit. Mus., vol. 28, p. 531, 1863.

Ethmia confusella Walsingham, Proc. Zool. Soc. London, p. 88, 1897; Dyar, Journ. N. Y. Ent. Soc., vol. 10, pp. 202, 205, 1902; Grossbeck, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 143, 1917; Wolcott, Journ. Dept. Agr. Porto Rico, vol. 7, p. 203, 1923; Forbes, Sci. Surv. Porto Rico, vol. 12, p. 134, 1930.

Cryptolechia strigosella Walker, Cat. Lep. Brit. Mus., vol. 29, p. 710, 1860.

Psecadia ingricella Moeschler, Ab. Senck. Nat. Ges., vol. 15, p. 343, fig. 19, 189; Walsingham, Proc. Zool. Soc. London, p. 527, 1892.

Not *Ethmia* (*Psecadia*) *confusella* Rebel, (preocc.) Iris, vol. 13, p. 169, 1900.

Described from Santo Domingo, this common species extends to most of the West Indian Islands; we have series from Cuba (Schaus), Santo Domingo and Culebra (Busck), Porto Rico (Forbes), Jamaica (E. L. Bell), Dominica (Kearfott collection), Grenada (Schaus), and from Key West, Florida. The genitalia are figured (pl. XXXIII, figs. 1 and 1a; pl. XXXVI, fig. 7).

Ethmia cubensis new species

Labial palpi dull white, second joint with three black annulations; terminal joint with two broad black annulations. Antennae dark fuscous, basal joints whitish. Face and head light ochreous fuscous with a small dark brown median tuft on posterior margin of the head. Thorax light ochreous fuscous with ten brown, nearly equidistant, marginal dots. Forewings dull white, strongly suffused with fuscous; costal edge light fuscous; from base of costa an outwardly oblique interrupted and irregular dark fuscous cloud to basal third of cell, followed by a small irregular nearly white area on the middle of the cell; from beyond this area an interrupted, irregular, longitudinal dark brown streak to below apex; shorter longitudinal, ill-defined, brown streaklets above and below the cell and along the veins; ten or eleven dark brown marginal spots from apical fifth of costa to tornus; cilia white, mixed with brown and with dark brown apical pencils. Hindwings hyaline, semitransparent on basal half, darker, fuscous towards apex; cilia white, fuscous towards apex. Abdomen dark fuscous above, with whitish underside and with bright ochreous genital tuft. Legs light ochreous fuscous, front and middle legs barred with dark brown.

Male genitalia (pl. XXXIII, fig. 2) with uncus hood-shaped, gnathos simple; thinly chitinized subscapium supporting underside of anal tube; harps with sacculus strongly curved and tufted, ending in two stout black spines and a cluster of specialized flat scales; cucullus upturned into a triangular piece and a curved, strongly haired apex; sacculus with large, erect, triangular flap posteriorly. Vinculum simple; anellus with two very long, erect, hairy papillae reaching to tip of gnathos; aedoeagus robust, straight, with strongly

curved base and sharp apex; cornuti a single large hook. Female genitalia (Pl. XXXVI, fig. 3) with ductus much longer than the abdomen, spiralled, strongly chitinized towards ostium; signum a four-pointed star covered with minute spines, one diameter with a row of stouter spines.

Alar expanse.—23–26 mm.

Type.—U. S. National Museum Cat. No. 44138.

Type locality.—Sierra Maestra, Camagüey, Cuba (Wm. Schaus, O. Querci, and J. Acuña, collectors), (Otero No. 9862).

Clearly the Cuban representative of the continental *Ethmia baliostola* Walsingham (Biol. Cent. Amer., vol. 4, p. 144, pl. 5, fig. 5, 1912), but considerably smaller and without the pure white apical area found in Walsingham's species; this latter was described a unique type from Costa Rica in the U. S. National Museum. Since then I have collected a good series in Panamá. The genitalia of the Cuban species are also similar to those of *E. baliostola*, but differ in detail, mainly in the form of the cucullus and in possessing two stout spines at the end of sacculus, which in Walsingham's species are replaced by additional large scales in the adjoining tuft, and by a large triangular erect flap on the succulus, represented in *E. baliostola* by a small stiff bristle.

E. cubensis might also be confused with *Ethmia flavicaudata* Walsingham, which it resembles in pattern and size, but Walsingham's species, described from Mexico and extending to Panamá, has very different genitalia in both sexes.

The present species also occurs in Jamaica, from which we have specimens collected by Dr. Schaus.

Ethmia oterosella new species

Labial palpi dark fuscous on outer side, white on inner side with a fuscous dot on second joint near tip. Face, head, and thorax with light fuscous white-tipped scales. Forewings dirty white with a central longitudinal black streak from base beyond end of cell, somewhat dilated on the cell and edged with pure white scales; base of costal edge black; apical part of wing suffused with light brownish fuscous; cilia white, with a few small black terminal dots. Hindwings whitish fuscous, slightly darker toward apex; cilia white, abdomen light fuscous with whitish underside. Legs white suffused with fuscous.

Female genitalia (Pl. XXXVI, fig. 4) typical, with ductus longer than abdomen, twisted and looped; signum a small erect ridge on a larger less chitinized base.

Alar expanse.—12–15 mm.

Type.—U. S. National Museum Cat. No. 44139.

Type locality.—Santiago de las Vegas, Cuba.

Foodplant.—*Stenospermum hamilifolia*. (A leaf-tyer, Otero No. 9632).

It gives me pleasure to name this pretty species after the industrious collector of so many new and reared specimens of Cuban Microlepidoptera, Mr. Ángel R. Otero.

This species is nearest the North American *Ethmia macelhosiella* Busck, but much smaller. The specimens before me are all females.

Ethmia hiramella Busck

Ethmia hiramella Busck, Ins. Inscit. Menst., vol. 2, p. 56, 1914.

This striking Cuban species has not been received since its description, and its foodplant is not known. It is nearest in size, color, and pattern to *E. xanthorrhoea* Zeller from Porto Rico, and is easily mistaken for this species, but differs in details of pattern and in genitalia. (Pl. XXXIII, fig. 3.)

Ethmia subsimilis Walsingham

Ethmia subsimilis Walsingham, Proc. Zool. Soc. London, p. 89, 1897; Meyrick, Lep. Cat., part 19, p. 28, 1914.

This species was described from a unique male from Jamaica. A homotype determined by Walsingham in 1908 from Cuba is in the U. S. National Museum. Mr. Otero has reared the species from larvae on *Trichilia hirta* at Santiago de las Vegas, Cuba (Otero No. 9583). In the National collection are other Cuban specimens collected by O. Querci on Sierra Maestra, 1,000 feet altitude.

The male genitalia (Pl. 5, fig. 2) are very similar to those of the North American *Ethmia delliella* Fernald. (Busck, Contr. Lepid., vol. 4, pl. 36, fig. 10, Decatur, Ill., 1920), with which species, however, it can not be confounded in coloration and markings; uncus broad, rounded; gnathos with top strongly spined; harpes bifurcate at apex, with both lobes sharply pointed; anellus with two long papillae, aedoeagus curved at base, drawn out into a long, attenuated stiff apex. Female genitalia (Pl. XXXVI, fig. 5) with ductus spiralled, longer than the abdomen, strongly chitinized at ostium; bursa large, elongate ovate, with a long, transverse, minutely spined, comb-like signum.

Ethmia submissa Busck

Ethmia submissa Busck, Ins. Inscit. Menst., vol. 2, p. 57, 1914.

This pretty species, described from Cuba, was taken again by Mr. H. K. Plank at Central Baraguá, Cuba, and by Mr. J. Acuña at Camagüey (Otero No. 9861), but the foodplant was not ascertained. The female genitalia (Pl. XXXVI, fig. 2) are typical of the genus, very similar to those of *E. subsimilis* Walsingham (Pl. XXXVI, fig. 5), but the bursa is smaller and the signum larger than in this species, which is easily distinguished by the wing pattern. I have seen no male.

Ethmia clarissa Busck

Ethmia clarissa Busck, Ins. Inscit. Menst., vol. 2, p. 56, 1914.

This species has not been received since its description from Cuba (Schaus coll.) and its foodplant is not known. The male genitalia are given (Pl. XXXIV, fig. 1).

Ethmia abraxasella Walker

Psecadia abraxasella Walker, Cat. Lep. Brit. Mus., vol. 30, p. 1017, 1864.

Ethmia abraxasella Walsingham, Proc. Zool. Soc. London, p. 90, 1897; Meyrick, Lep. Cat., part 19, p. 27, 1914; Wolcott, Journ. Dept. Agr. Porto Rico, vol. 7, p. 203, 1923; Forbes, Sci. Surv. Porto Rico, vol. 12, p. 134, 1930.

Psecadia aureoapicella Moeschler, Abh. Senck. Nat. Ges., vol. 16, p. 341, 1890.

Recorded by Walsingham from Cuba; we have no Cuban specimen, but the species is easily recognized by the yellow dash below the cell. Specimens from Porto Rico are in the U. S. National Museum.

Ethmia nivosella Walker

Tamarrha nivosella Walker, Cat. Lep. Brit. Mus., vol. 29, p. 817, 1864; Walsingham, Proc. Zool. Soc. London, p. 114, 1897; Busck, Proc. U. S. Nat. Mus., vol. 30, p. 728, 1906.

Psecadia adustella Zeller, Horae Soc. Ent. Ross., vol. 13, p. 240, 1877; Moeschler, Abh. Senck. Natur. Ges., vol. 16, p. 343, 1890.

Ethmia nivosella Meyrick, Lep. Cat., p. 19, p. 28, 1914; Forbes, Sci. Surv. Porto Rico, vol. 12, p. 134, 1930.

Ethmia adustella Wolcott, Journ. Dept. Agr. Porto Rico, vol. 7, p. 203, 1923.

This and *E. scythropa* Walsingham have the curious erect scaling on the head (Busck, Proc. U. S. Nat. Mus., vol. 30, p. 729, 1906), which at once separates them from all the other species of the genus with normal smooth head. In the National Museum are specimens of the present species from Cuba (Wm. Schaus) and also from Porto Rico and Jamaica.

The genitalia are given. (Pl. XXXIV, fig. 3; pl. XXXVI, fig. 1.)

Ethmia scythropa Walsingham

Ethmia scythropa Walsingham, Biol. Centr. Amer., vol. 4, p. 148, pl. 5, fig. 13, 1912; Meyrick, Lep. Cat., part 19, p. 28, 1914.

This species, described from a unique type in the U. S. National Museum from Costa Rica, is now well represented in the Museum by a large series from Costa Rica and by two specimens from Cuba (Schaus). It is closest to *E. nivosella* Walker, both in the tufted head and in coloration, but is larger and easily distinguished by pattern and genitalia. (Pl. XXXV, fig. 1.)

Ethmia ornata new species

Psecadia exornata Zeller (in part), Horae Soc. Ent. Ross., vol. 13, p. 239, 1877.

Zeller included and described as a variety of his Peruvian species *Psecadia exornata* two smaller specimens from Cuba, differing in wing form and pattern as well as in size. I had this smaller Cuban species for several years under Zeller's name, and it was so retained by Walsingham, but examination of Zeller's types in Lord Walsingham's collection convinced us both that the Cuban species was not the same as the Peruvian species, and required a new name. As Zeller pointed out, the basal white area of the forewing is not spotted with greenish black, except on costal half, and the dorsal half is pure white; the tornal white area is larger than in *exornata* and the terminal edge is less golden.

The genitalia readily separate the two species. The male genitalia of both are given. (Pl. XXXV, figs. 2 and 3.)

Alar expanse.—19–20 mm.

Type.—U. S. National Museum Cat. No. 44140.

Type locality.—Cuba.

FAMILY ELACHISTIDAE

Donacivola new genusGenotype *Donacivola saccharella* new species

Head smooth, much flattened, face strongly retreating, eyes not visible from above. Labial palpi with second joint very long, porrected, smooth, slightly thickened outwardly, terminal joint erect, half as long as second, slightly thickened, smooth, acute. Maxillary palpi obsolete; tongue well developed, spiralled. Antennae $4/5$, simple, in male shortly ciliated ($1/2$). Thorax broad, flattened, smooth.

Forewings elongate ovate, apex produced, attenuate and upturned; 11 veins, cell open between 9 and 10; 7 and 8 out of 6 to costa; 6 to termen; 4 and 5 out of 6; 9 out of base of 6; 3 absent; 2 strong; 1c present in its entire length; 1b simple. (Pl. XXXII, fig. 5.)

Hindwings (Pl. XXXII, fig. 6) half as broad as forewings, lanceolate, pointed; 5 veins, 4 and 5 absent; cell open; 6 and 7 stalked to termen; 2 and 3 connate. Posterior tibia clothed with long fine but stiff hairs above and below.

Male genitalia (Pl. XXXII, figs. 1 and 2) with uncus absent; socii erect; gnathos ball-shaped, transversely sculptured; anellus with two upright papillae; vinculum with short blunt anterior process; aedeagus straight.

Female genitalia (Pl. XXXII, fig. 3) with ductus bursa short, funnel-shaped, and chitinized on its outer half; bursa very elongate ovate, granulated on inside, signum a long, narrow, transverse, spiny band.

The genus is a development from *Elachista*, from which it differs in the more complex venation and in the curiously upturned apex of the forewing, as found in the family *Lyonetidae*.

Donacivola saccharella new species

Labial palpi ochreous white, terminal joint with base, apex, and a narrow annulation below apex black. Antennae light gray with faint darker annulations. Face silvery white; head and thorax light gray.

Forewings (Pl. XXXII, fig. 4) light gray, a black spot at base of dorsum, an outwardly, sharply angulated black fascia on the middle of the wing continued into a longitudinal line to apex. Above and below this line and following the fascia a large costal and opposite dorsal white spot at apical third; five converging black streaks in the costal cilia above apex,

separated by white; a round black dot at apex and two black streaks parallel with the edge of the wing in the otherwise white outer part of the dorsal cilia; inner cilia dark fuscous.

Hindwings and cilia dark fuscous. Abdomen dark gray above with silvery underside. Legs silvery gray with broad black annulations.

Alar expanse.—(With tips of wings flattened out) 8–9 mm.

Type.—U. S. National Museum Cat. No. 44141.

Type locality.—Baraguá (L. C. Scaramuzza) and Santiago de las Vegas, Cuba (A. R. Otero).

Foodplant.—Sugar-cane.—(Otero No. 9633.)

The larva has a much elongated, flattened head, with biting mandibles (not a sapsucker). The two halves of the epicranium are greatly prolonged backwards. The edges of the epicranium, the endoskeletal ridges, and the mouth parts are strongly chitinized, dark brown, contrasting with the light yellow color of the rest of the head. Eye spots on front edge of the head capsule deep black. Body flattened and tapering backwards from the very broad first thoracic segment, more than twice the width of the head, which is partly withdrawn in it; a thinly chitinized moon-shaped prothoracic shield. Two pairs of thoracic legs only, those on the first joint obsolete. Abdominal feet on third, fifth, sixth, and ninth abdominal segments, each with a single transverse row of minute crochets.

The larva makes an extensive, elongate, irregular mine on the base of the leaves of sugar-cane. When mature it is about 7–8 mm. long; it leaves the mine and spins a slight dark brown cocoon under which it pupates.

The pupa (Pl. XXXII, figs. 7, 8 and 9) is a most extraordinary exaggeration of the pupa of the genus *Elachista*; the back is flattened or even slightly concave, and the lateral edges are sharply produced and armed with strong, curved, forked spines, one on each abdominal segment. Head and thorax armed with a similar strong but unforked spines; wing covers reaching to eighth abdominal segment; no movable segments. Length 4 mm.

According to reports from the two Cuban experiment stations, this species is a potential economic pest of sugar-cane but is at present kept well in check by abundant affective parasites.

FAMILY GRACILARIIDAE

Porphyrosela desmodiella Clemens

Lithocolletis desmodiella Clemens, Proc. Acad. Nat. Sci. Phila., vol. 11, p. 318, 1859; Walsingham, Proc. Zool. Soc.

London, p. 146, 1897; Meyrick, Gen. Ins., Fasc. 128, p. 11, 1912; Braun, Cornell Mem., vol. 68, p. 193, 1924; Forbes, Sci. Surv. Porto Rico, vol. 12, p. 140, 1930.

Porphyrosella desmodiella Braun, Trans. Amer. Ent. Soc., vol. 34, pl. 24, figs. 14-15, 1908.

A series by Mr. Grove (No. 9621) at Santiago de las Vegas, Cuba, from leaf-mining larvae in *Bradburya* species can not be distinguished from our common *Desmodium* miner of the eastern part of the United States.

Miss Braun's genus *Porphyrosella* has been abandoned by herself and by Meyrick, I think, unwarrantedly; the wing form and venation, as well as larval characters, amply differentiate it.

Phyllonorycter stigmaphyllae new species

Labial palpi and face golden white. Tuft on head reddish brown. Antennae dark fuscous, nearly black above, with narrow light ochreous annulations, underside golden white. Thorax light reddish brown; underside silvery white. Forewings reddish brown with two white transverse fasciae and three white apical dashes; the first fascia from basal fourth of costa slightly inwardly oblique, narrowly margined basally by slightly darker blackish brown scales, outwardly gradually fading into the ground color; second fascia on the middle of the wing straight, similarly edged basally and similarly fading into the ground color posteriorly; a golden white streak at tornus, an opposite golden white dash on costa, and an oblique golden white streak before apex; apical cilia concolorous with wing, dorsal cilia silvery white. Hindwings and cilia silvery white with apex touched by dark fuscous. Abdomen dark fuscous above with silvery white underside and anal tuft. Legs with tibiae brown, tarsi silvery white with blackish brown annulations.

Alar expanse.—5-6 mm.

Type.—U. S. National Museum Cat. No. 44142.

Type locality.—Santiago de las Vegas, Cuba.

Foodplant.—*Stigmaphyllon sagralanum* (Otero No. 9590).

An interesting aberrant form, placed in *Phyllonorycter* solely on characters of the imago, which in all respects agree with the genus; venation and legs typical and the white wing-markings dark margined basally. On the other hand the larva and the mine are curiously similar to those of the genus *Cameraria* and on the first inspection of the mine and larva I unhesitatingly placed the species in this genus.

The larva is flattened, with thoracic segments enlarged, twice as wide as head and with a large, oval, chitinized, blackish dorsal spot on each segment as in *Cameraria*; the head is flattened, triangular, with mouthparts protruding in front, yet differing in details from *Cameraria*.

The larvae make large irregular blotch-mines on the upper surface of the leaves, leaving the very thin upper epidermis semitransparent whitish, while the underside of the leaf shows no sign of the mine; the jet black frass is scattered in the mine, but when mature the larva gathers some of it into a ring and uses it as the lateral edges of its nearly circular cocoon, spun above it, in which it pupates.

Spanioptila spinosum Walsingham

Spanioptila spinosum Walsingham, Proc. Zool. Soc. London, p. 148, 1897; Meyrick, Gen. Ins., Fasc. 128, p. 12, 1912; Forbes, Sci. Surv. Porto Rico, vol. 12, p. 141, 1930; Journ. Dept. Agr. Porto Rico, p. 380, 1931.

This curious spiny species has hitherto been known only from a few collected specimens from St. Thomas and Porto Rico. Mr. Otero has succeeded in discovering its larva and foodplant and has reared it to maturity at Santiago de las Vegas, Cuba. The species is a leaf-miner on *Casearia hirsuta* (Otero No. 9623).

Chilocampyla psidiella new species

Antennae pearly white without annulations; flap of scales on basal joint black on outer third. Face pearly white. Head and thorax ivory white. Labial palpi with second joint light yellow sprinkled with black scales and with broad black outer edge; terminal joint pearly white with a narrow black annulation near base; maxillary palpi yellowish, strongly shaded with black. Tongue very long, spiralled at tip.

Forewings light yellow, sparsely sprinkled with black and with indistinct and ill-defined white markings; at basal fourth an indistinct and incomplete transverse whitish fascia, most noticeable by its edging of black scales; before the middle of costa is a similar faint whitish fascia edged with black and running obliquely to the middle of dorsum; beyond this are four other outwardly oblique, faint, white streaks across the wing; between the first two of these is a longitudinal blackish streak above the middle of the wing, and along dorsal edge are scattered slightly raised, black-tipped scales overlapping the edge.

Hindwings dark fuscous with lighter cilia. Abdomen dark fuscous above with silvery white underside. Legs silvery ochreous; front and middle legs with the thickened ends of the tibiae black; tarsi with black annulations; posterior tibiae with two rows of even bristles above.

Male genitalia. Harpes with sacculus straight, parallel; outer costal angle rather sharp, cucullus evenly rounded; anellus with two long curved arms lying along inner surface of harpes; aedoeagus long, nearly straight; cornutus a single very stout curved spine.

Female genitalia with signum consisting of two long, stout, feathery spines connected toward anus by a horseshoe-shaped chitinization.

Alar expanse.—7–9 mm.

Type.—U. S. National Museum Cat. No. 44143.

Type locality.—Santiago de las Vegas, Cuba. (A. R. Otero.)

Foodplants.—*Psidium guajaba* and *Eugenia avillaris*. (Otero Nos. 9713 and 9471.)

The species agrees with the type of the genus in general color and structure, but lacks the costal depression of the forewing of the male of the genotype, *C. dyariella* Busck, which apparently is merely a specific character. The genitalia easily separate the two species in both sexes.

The larva is a typical Gracilariiid; when mature, it is 6 to 7 mm. long and turns a deep wine red before spinning its cocoon. The mine on the upper side of the leaf begins as a narrow serpentine track, which broadens out into a large irregular blotch mine; the upper epidermis turns white and makes the mines very noticeable at a distance.

Acrocercops sanctaerucis Walsingham

Dialectia sanctaerucis Walsingham, Proc. Zool. Soc. London, p. 151, 1897.

Acrocercops sanctaerucis Meyrick, Lep. Cat., 6, p. 45, 1912; Gen. Ins., Fase. 128, p. 16, 1912; Cotton, Journ. Dept. Agr. Porto Rico, 2, p. 300, 1918; Wolcott, idem, 7, p. 205, 1923; Forbes, N. Y. Acad. Sci. Surv. Porto Rico, vol. 12, p. 141, 1930; Journ. Dept. Agr. Porto Rico, p. 380, 1931.

This pretty little species was described from St. Thomas; it was reared by Mr. Otero from blotch mines on *Solanum torvum* (No. 8146). I have reared it from the same plant on St. Croix and in Santo Domingo and have identified it from Porto Rico, reared from eggplant.

Acrocercops undifraga Meyrick

Acrocercops undifraga Meyrick, Exot. Micros., vol. 4, p. 47, 1931; Forbes, Journ. Dept. Agr. Porto Rico, p. 380, 1931.

Described from Haiti, where it was bred from *Solanum torvum*. Mr. Otero reared the series (No. 9491) before me from *Solanum antillarum* in January, while the closely similar *A. sanctaegrucis* has been reared by him and others from *Solanum torvum* (as well as from eggplant); the two species apparently feed indiscriminately on both plants. They are quite distinct both in genitalia and in pattern in spite of their similarity. In *A. sanctaegrucis* the first white, black-edged dorsal spot is more triangular and reaches across the wing to costa and the second nearly so, while in *A. undifraga* these spots are more rounded and do not reach the costa. I regret that I caused Dr. Forbes to consider this species synonymous with *A. sanctaegrucis* before sufficient study of the descriptions.

Acrocercops cordiella new species

Antennae somewhat longer than forewing, whitish fuscous, with indistinct darker fuscous annulations; basal joint with small blackish flap of scales. Second joint of labial palpi white with blackish fuscous outer side; terminal joint pure white with an incomplete fuscous annulation close to the base. Head white. Thorax brown with a longitudinal white streak covering all but the sides.

Forewings light brown with extensive white markings; entire dorsal edge white; a large triangular dorsal spot on basal third reaching costal edge; a second, more rounded, dorsal white spot not quite reaching costa; a third, more flattened, dorsal white spot reaching into the cilia; all of these white markings are edged above with black scales; above the last of the dorsal spots is a slender curved costal white streak also edged with black scales; cilia golden brown except for the white tuft from the apical dorsal spot.

Hindwings dark fuscous with lighter cilia. Under side of body silvery white, abdomen dark brown above. Front and middle tibiae smooth, not thickened, white with broad blackish brown annulations; posterior tibiae and spurs silvery white with a double row of stiff bristles above, tarsi yellowish.

Alar expanse.—6-7 mm.

Type.—U. S. National Museum Cat. No. 44144.

Type locality.—Santiago de las Vegas, Cuba.

Foodplant.—*Cordia alba*. (A. R. Otero No. 9477.)

The species is exceedingly similar in pattern and color to *Acrocercops sanctaecrucis* Walsingham and careful discrimination is necessary to separate flown specimens not reared. Perfect specimens, however, can be distinguished by the different details of ornamentation, and the genitalia, although also closely similar, readily prove the two species distinct, as could be expected from the different foodplant families; the aedoeagus of *sanctaecrucis* is stouter than that of *cordiella* and the harpes have two large, comb-shaped papillae, which are only faintly indicated in *cordiella*.

Acrocercops melantherella new species

Antennae slightly longer than forewings, rather thick, dark bronzy brown without color annulations, basal joint moderate smooth. Labial palpi with both joints somewhat thickened with scales, yellowish; terminal joint with a broad dark brown annulation leaving only the tip yellow. Maxillary palpi yellowish with a narrow dark brown annulation at base of terminal joint. Face and head light yellowish brown, thorax darker brown. Forewings light brown dusted with dark purplish brown, especially on costal half; a small light ochreous costal spot at basal third, a larger outwardly oblique ochreous streak before the middle of costa; a small ochreous costal at apical third and a narrow transverse light ochreous fascia across the wing at apical fifth; a small ochreous spot on apex with apical cilia of some color; cilia otherwise dark brown. Hindwings dark purplish fuscous with lighter cilia. Abdomen dark fuscous above with light ochreous underside and anal tuft. Legs ochreous with heavy blackish brown annulation; posterior tibiae above and below with stiff bristles, which are continued on upper side of first tarsal joint.

Alar expanse.—7 mm.

Type.—U. S. National Museum Cat. No. 44145.

Type locality.—Santiago de las Vegas, Cuba.

Foodplant.—*Melanthera deltoidea*. (A. R. Otero No. 9548.)

An obscurely colored species which looks like a *Marmara* except for the bristles on the hind tibiae; the roughened palpi and thick antennae are rather unusual in the genus.

Acrocercops clitoriella new species

Antennae slightly longer than forewings, light fuscous with faint darker annulations and light ochreous towards the tip; basal joint short, smooth. Labial palpi with both joints

slightly thickened with scales, light ochreous, with tip of second and an annulation near the tip of terminal joint black. Maxillary palpi ochreous. Face and head light ochreous. Thorax darker ochreous, fuscous. Forewings dull ochreous, heavily overlaid with blackish fuscous scales; three narrow and faint, outwardly oblique, ochreous white streaks cross the wing, from basal third, middle, and apical third of costa; two small opposite costal and dorsal spots of same color just before apex. Hindwings dark fuscous. Abdomen dark fuscous above, underside of body light ochreous. Legs ochreous, tarsi with heavy blackish brown annulations; posterior tibiae above with a double row of spines.

Alar expanse.—7 mm.

Type.—U. S. National Museum Cat. No. 44136.

Type locality.—Baraguá, Cuba. (H. K. Plank.)

Foodplant.—*Clitoria* sp.

An obscurely colored species close to *A. melantherella*.

Acrocercops rendalli Walsingham

Dialectica rendalli Walsingham, Proc. Zool. Soc. London, p. 151, 1897.

Acrocercops rendalli Meyrick, Gen. Ins., Fasc. 128, p. 16, 1912; Forbes, Sci. Surv. Porto Rico, vol. 12, part 1, p. 144, 1930.

Accepting for the present as correct Dr. Wm. Forbes's and my own identification of this species, reared from a malvaceous weed in Porto Rico, I have no specimens of it from Cuba, but it presumably occurs there. It was described from Jamaica and in view of the three following very similar new species there is some doubt of the determination. It is a good example of the futility of mere color description even when the pattern is striking. Superficially these species are so much alike that even a careful worker would be apt to call them the same species, if foodplants were not known and genital structures were not examined. The Porto Rican species agrees best with Walsingham's description, which does not mention the edging of the transverse markings with thin lines of black scales, conspicuous in the following species, but these are fugitive and may have been rubbed out in both the Porto Rican specimens and Walsingham's unique type. The costal edges of the harpes in this species are slightly concave, thickened and chitinized on basal half, sacculus evenly rounded, apex pointed; the anterior process of the vinculum is evenly rounded, thus differing from the following species.

Acrocercops maranthaceae new species

Labial palpi smooth, white, second joint longer than second, somewhat thickened with appressed scales, blunt; maxillary palpi short, white, terminal joint smoky, nearly black. Tongue more than twice as long as labial palpi, white. Antennae longer than forewings, basal joint white with small scale flap light fuscous; basal third whitish, getting smoky outwardly, apical half dark fuscous. Face and head pearly white. Thorax with anterior edge broadly light brown.

Forewings light brown with pearly white transverse markings; a white fascia at basal third is narrow on the costal edge and broadens out across the wing to dorsum, where its width is more than twice the width on costa, both edges margined with black scales; just beyond middle of costa is a second white, outwardly oblique, black-margined fascia with nearly parallel edges but slightly enlarged on dorsum; at apical fourth a round, white, black-edged costal spot and midway between this and the second fascia a thin, outwardly oblique, white, black-edged costal streak; on extreme apex and extending into base of cilia a small transverse white spot edged exteriorly by a short black line in the cilia; apical cilia whitish fuscous, dorsal cilia dark brownish fuscous.

Hindwings and cilia dark brownish fuscous. Legs white, heavily barred with blackish brown; tarsal joints white, tipped with brown; posterior tibia with stiff spines above, which extend out on first tarsal joint. Abdomen yellowish brown above, silvery white on the underside.

Male genitalia with harpes elongate, narrowed at apical third and slightly wider beyond; vinculum with triangular pointed anterior process; aedoeagus long, stout, straight. Female bursa elongate, with a stout two-pronged signum one-third as long as bursa.

Alar expanse.—7 mm.

Type.—U. S. National Museum Cat. No. 44147.

Type locality.—Santiago de las Vegas, Cuba.

Foodplant.—*Maranthacea* sp. (Leaf-miner, A. R. Otero, No. 9639.)

Acrocercops cissiella new species

Coloration and pattern so similar to those of the foregoing species that description of these is nearly a repetition and, allowing for some slight individual variation, hardly sufficient for specific differentiation. The palpi and head, the thorax, and the white markings on the forewing are, how-

ever, more yellowish, ivory white; the scaleflap on first antennal joint is larger; the white outwardly oblique costal streak at apical third is larger and has a minute opposite dorsal white fleck; the white costal spot at apical fourth is also larger than in the foregoing species and reaches nearly across the wing with a few white dashes in the opposite dorsal cilia; the apical white spot and its perpendicular black border are more prominent and the apical cilia are white.

The female bursa contains a very stout three-pronged signum, half as long as the length of the bursa and strikingly larger and stouter than that of the species.

Alar expanse.—7 mm.

Type.—U. S. National Museum Cat. No. 44148.

Type locality.—Santiago de las Vegas, Cuba.

Foodplant.—*Cissus* sp. (Leaf-miner, Otero No. 9578.)

The different foodplant and the very much larger signum in the female preclude this from being a variety of the foregoing species and clearly establish its specific validity.

Acrocercops ipomoeae new species

Labial palpi smooth, slightly thickened with scales, pearly white; second joint with narrow longitudinal streak on outer side and tip blackish brown. Maxillary palpi white with blackish brown terminal joint. Antennae light fuscous, first joint white with a rather well-developed scaleflap white with black tip. Face and head pure white; thorax white with base of shoulder-flaps and extreme posterior tip light brown.

Forewings light golden brown with white markings occupying the larger part of the surface; from basal third of costa a very broad white fascia more than twice as broad on dorsum as on costal edge, reaching there nearly to the base of the wing; a similarly shaped transverse white fascia at apical third, like the first slightly edged with blackish brown scales, especially on outer margins; at apical fifth a large, elongate, white costal spot extended outwardly in an oblique white streak reaching nearly across the wing to an opposite, elongate, dorsal white spot; the dorsal cilia bordering this spot white, cilia otherwise golden brown.

Hindwings dark brownish fuscous with lighter cilia. Abdomen brownish fuscous above with silvery white underside. Legs white, heavily barred exteriorly with blackish brown, anterior and middle tibia slightly thickened with scales, posterior tibia with stiff bristles above extending out on first tarsal joint; tarsal joints white with light brown annulation.

Male genitalia with harpes strongly spined on outer surface and with outer half of both edges fringed with closely set dark-colored bristles; aedeagus long, slender, straight, vinculum with anterior process long tongue-shaped. Female bursa elongate oval with seven small biforked signa set in a circle around the middle.

Alar expanse.—7 mm.

Type.—U. S. National Museum Cat. No. 44149.

Type locality.—Santiago de las Vegas, Cuba.

Foodplants.—*Ipomoea* and *Jaquemontia*. (Leaf-miner, Otero No. 9716–9463.)

While of the same group as the three species treated above, this species is readily recognized by its pattern and more golden color. The genitalia are of the same general type, but at once distinguished by the fringed and spiny harpes, the tongue-shaped process of the vinculum, and in the female by the multiple small spines of the same general shape as the single larger signum in the foregoing species.

Neurostrata gunniella Busck

Gracilaria gunniella Busek, Proc. U. S. Nat. Mus., vol. 30, p. 731, 1906.

Acrocercops gunniella Meyrick, Gen. Ins., Fasc. 128, p. 16, 1912.

Neurostrata gunniella Ely, Proc. Ent. Soc. Wash., vol. 19, pp. 41, 68, 1917.

This striking species was described from Brownsville, Texas, and had not been received since. Mr. Otero has succeeded in rearing a series from *Mimosa asperata* in Cuba. Although of normal Gracilariid type, the larvae are true stem-borers in this plant, not merely mining under the epidermis of the plant like the species of the genus *Marmara*, but actually boring into the pith of the stem, a very unusual mode of life in the family *Gracilariidae*. On maturity the larva comes out of the stem for pupation in a cocoon.

The genus *Neurostrata* possesses a wing character not described by its author, namely, a very strong frenulum-like spine from the pronounced costal shoulder of the hindwing at one-third from base, stouter even than the frenulum itself, which is present in its normal position.

The closely allied genus *Neurobathra* Ely, which differs mainly in the modification of the hindwings of the male, shows a corresponding character in three costal spines arising from the same

place, and the genus *Micrurapteryx* Spuler likewise has three or more stiff costal bristles on the shoulder of the hindwing, although not so strongly developed as in the two other genera.

The male genitalia of *N. gunniella* have the harpes rhombic, short and broad, with costa and sacculus straight, parallel, and apical edge oblique, parallel with the base of the harpe; vinculum with short pointed anterior process; aedoeagus long, nearly straight, pointed; eighth abdominal segment with a pair of curved hair pencils. Bursa of the female with two large oblong forked signa.

Neurostrata pithecolobiella new species

Labial palpi with second joint and basal half of third joint thickened with outwardly increasing heavy scaling, abruptly cut off before apex leaving the very attenuated tip of third joint smooth; base and inner sides white, outer part of scaling blackish. Maxillary palpi short, slightly tufted at tip, white. Antennae longer than wing length, shiny blackish fuscous. Face white. Head light brown with darker fuscous side tuft. Thorax light brown with dark fuscous shoulders. Forewings light ochreous brown with costal edge broadly suffused with bluish black scales; bluish black first and second discal spots more or less confluent with the dark costa; a narrow outwardly curved irregular fascia just before apex and a large spot on apex, shiny bluish black, with a thin edge of the wing light brown. Four minute light ochreous nearly white costal dots on outer half. Base of cilia broadly shiny, bluish black, tips of cilia mixed with light brown; costal cilia long and abruptly cut off at apex; dorsal cilia short giving a hook-like appearance to the wing. Hindwings blackish fuscous. Abdomen dark fuscous above, underside lighter, male genitalia and two curved hair pencils on eighth abdominal joint light ochreous. Legs light ochreous on their inner sides, blackish fuscous on their outer side; tarsi light ochreous, each joint slightly tipped with black.

Male genitalia with harpes elongate, costa broadly thickened, sinuate, apex produced, outer edge sinuate, aedoeagus short, robust; eighth abdominal segment with two long, curved hair pencils. Female bursa with two large elongate pronged signa.

Alar expanse.—9–10 mm.

Type.—U. S. National Museum Cat. No. 44150.

Type locality.—Santiago de las Vegas, Cuba. (A. R. Otero.)

Foodplant.—*Pithecolobium saman*. (Otero No. 9683.)

The curious scaling of the labial palpi, reminding one of the genus *Epermenia*, is unique in the family so far as known and at once distinguishes this pretty species, but does not, in my judgment, necessitate generic separation.

The larva, of typical Gracilariid form, feeds in the stem of *Pithecolobium*. When mature it emerges and spins a narrow cocoon in the folded edge of a leaf and ornaments it with twenty or more pearly white composite air bubbles, voided from the anus and stuck out through slits in the cocoon, which are afterwards spun together again, as is the rule in the genus *Marmara*.

***Neurobathra curcassi* new species.**

Second joint of labial palpi with well-developed triangular tuft, dark fuscous with extreme base and apex and with the tips of the brush scales white; terminal joint white. Maxillary palpi fuscous with white tips. Head light ochreous fuscous. Thorax light fuscous with dull ochreous lateral stripes. Forewings dark fuscous on costal half, lighter, ochreous fuscous on dorsal half; costal edge from middle of wing nearly to apex narrowly ochreous white; from middle of costa a very outwardly oblique ochreous white streak and from apical third of costa a similar streak; two dorsal very outwardly oblique white streaks nearly opposite the costal streaks but slightly nearer base; just before apex a blackish brown oval spot; cilia dark fuscous tipped with white. Hindwings dark fuscous with slightly lighter cilia. Abdomen dark fuscous above, underside of entire body silvery white. Legs dark fuscous with white annulations.

Alar expanse.—10 mm.

Type.—U. S. National Museum Cat. No. 44151.

Type locality.—Santiago de las Vegas, Cuba.

Foodplant.—*Curcas curcas*. (Otero No. 9591.)

Close to the foregoing species and to the North American genotype *N. strigifinitella* Clemens.

Neurobathra albomarginata Walsingham

Coriscium albomarginatum Walsingham, Proc. Zool. Soc. London, p. 154, 1897.

Parectopa albomarginata Meyrick, Gen. Ins., Fasc. 128, p. 21, 1912.

Acrocercops albomarginata Forbes, Sci. Surv. Porto Rico, vol. 12, p. 112, 1930.

Described from St. Thomas and recorded from Porto Rico by Forbes, but foodplant hitherto not ascertained. Mr. Otero reared the species repeatedly from leaf-mining larvae of *Bradburya plumeri*. (Otero No. 9679.)

Gracilaria perseae Busek

Gracilaria perseae Busek, Proc. Can. Ent., vol. 52, p. 239, 1920; Mozzette, U. S. Dept. Agr. Farmers' Bull. No. 1261, p. 20, fig. 15, 1922.

The avocado leaf-roller, described from Florida, where it is at times seriously injurious to the young growth. Dr. Bruner reared this from avocado, *Persea persea*, at Santiago de las Vegas, Cuba. (No. 9086.)

FAMILY HEMEROPHILIDAE

Mictopsichia gemmisparsana Walker

Gauris gemmisparsana Walker, Cat. Lep. Brit. Mus., vol. 28, p. 415, 1863.

Mictopsichia gemmisparsana Walsingham, Biol. Cent. Amer., vol. 4, p. 306, 1914; Meyrick, Am. Naturhist. Mus. Wien., vol. 44, p. 261, 1930.

The foodplant of this common tropical species has not, so far as I know, been ascertained before. Mr. Otero has succeeded in doing so by rearing a series from *Cissus sicyoides* on which the larvae are leaf-tyers. This is the first West Indian record of the genus.

Usara eurythmiella Busek

Ussara eurythmiella Busek, Proc. U. S. Nat. Mus., vol. 47, p. 59, 1914.

This exquisite little species was described from Porto Bello, Panama (Busek coll.). Mr. Otero has succeeded in rearing the species in Cuba from two pepper plants, *Piper aduncus* and *P. auritum* (Otero No. 9850). This is the first record of the early stages of the genus. The larva spins a very characteristic open network cocoon, intermediate between that of *Plutella* and that of *Urodus*, attached flat on the leaf like the former, but built up of thick, tough, transverse strands, connected with thick longitudinal lines, forming regular rectangular windows, through which the pupa can be seen; at each end there is a prolonged longitudinal slit; through the posterior slit the larval skin is thrown out; through the anterior slit the adult emerges, leaving the pupal skin within the cocoon; on the anterior third of the cocoon is an elevated

hump or shoulder, supported by the heaviest strand of silk, which probably is the first part made.

The cocoon is 10 mm. long by 3.5 mm. wide at its broadest part, tapering towards both ends. The cocoons varied from light yellow to dark brown in color, probably due to exposure or moisture.

The pupa is light yellow with dark brown pattern on the abdominal joints and with the spiracles on dark brown, protruding, lateral tubercles on second to eighth abdominal joints, small on the first three and the last, very prominent on the sixth and seventh joints which are free and movable; anal joint without cremaster, but with a cluster of small ventral hooks; wing covers and tips of antennae and legs reaching to middle of fifth abdominal joint. Length of pupa 7 mm.

Brenthia pavonacella Clemens

Brenthia pavonacella Clemens, Proc. Acad. Nat. Sci. Phila., p. 172, 1860; Stainton (Clemens) Tineina N. Amer., p. 134, 1872; Zeller, Hor. Soc. Ent. Ross., vol. 13, p. 174, 1877; Moeschler, Abh. Senck. Nat. Ges., vol. 16, p. 335, 1890; Walsingham, Proc. Zool. Soc. London, p. 120, 1897, Bio. Cent. Amer. Lep., vol. 4, p. 307, 1914; Meyrick, Gen. Ins., Fasc. 164, p. 24, 1914; Wolcott, Journ. Dept. Agr. Porto Rico, vol. 7, p. 205, 1923; Forbes, Sci. Surv. Porto Rico, vol. 12, p. 102, 1930.

Choreutis suavis Felder, Reise Novara, pl. 138, fig. 3, 1875.

This common North American species extends to Brazil and has been repeatedly recorded from the West Indies. Mr. Otero sent a series labeled: "common on *Bradburya plumieri*," which may well be a foodplant; in North America the larvae feed normally on other leguminous plants, *Amphicarpea* and *Desmodium*.

Like several other species of the family, the moths can often be observed "dancing" in circles on leaves, displaying their hind-wings.

Brenthia sapindella new species

Labial palpi white, second joint with extreme base and a small outer spot before apex blackish brown, terminal joint with extreme base and extreme tip blackish brown. Antennae dark purplish brown with a thin white line on underside from base to tip and with a single white scale on upper side of each of the first eight or ten joints. Face white with a central brownish gray line. Head blackish brown. Thorax blackish brown with a thin transverse white line and with

small lateral white dashes on anterior edge; shoulder-pads narrowly edged with white. Forewings blackish brown irrorated with white and bluish metallic scales; a narrow, incomplete, and ill-defined white transverse streak near base, a broad middle area of white reticulation, broadest on dorsum and not reaching costa, edged costally by heavy bluish metallic streaks; outer third of wing but sparsely sprinkled with white but with a prominent transverse white spot on the end of the cell; apical and terminal edges broadly lined with bluish metallic scales; cilia dark brown with a broad white pencil at apex and a smaller pencil near tornus. Hindwings blackish brown with base of costa and a broad streak from there to middle of cell white; a white costal dash at apical third; an oblique white streak across veins 3 to 5 and a thinner white line across vein 2; inner edge touched with white; the white markings are tipped by bluish metallic scales and a broad bluish metallic fascia crosses the tip of the wing; cilia blackish brown, with apical part and a smaller terminal area broadly tipped with white.

Underside of both wings with the upper pattern repeated; on the hindwing even emphasized and with much heavier sprinkling of the bluish metallic scales, this side is the most conspicuously displayed, when the moths "dance" around with the hindwings lifted at right angles to the forewings. Abdomen dark brown above, underside of entire body silvery white. Legs white with narrow blackish brown annulations.

Alar expanse.—10 mm.

Type.—U. S. National Museum Cat. No. 44152.

Type locality.—San Diego de los Baños del Río, Cuba.

Foodplant.—*Sapindus saponarius*, (Otero No. 9809).

Very similar to the genotype but larger and differing in details of ornamentation as well as in genitalia; nearest to *Brenthia ocellata* Walsingham, but also amply distinct in structure from this Central American species.

The foodplant of only one species of the genus was hitherto known and the assumption from this species that the genus was confined to leguminous plants is interestingly disproven by Mr. Otero's rearing the present species from such a widely different plant family as the *Sapindaceae*.

Tortyra ignita Zeller

Choregia ignita Zeller, Hor. Soc. Ent. Ross., vol. 13, p. 195, 1877.

Tortyra auriferalis Walsingham, not Walker, Proc. Zool. Soc. London, p. 528, 1891; p. 121, 1897; Meyrick, Gen. Ins., Fasc. 164, p. 19, 1914.

This species has mistakenly been considered identical with Walker's San Domingo species, *T. auriferalis*, by Walsingham and Meyrick, who both mistakenly added other synonyms to Walker's name. Almost every island and locality on the mainland has its own species of this genus, presumably feeding on different species of *Ficus*. The very similar pattern and strong metallic colors of these beautiful insects have occasioned the muddled synonymy in this genus, as has been the case in other groups with striking pattern and colors, but careful examination easily discloses constant differences of color and pattern and the genitalia prove that these forms are not merely local varieties, but good valid species which do not interbreed.

The present species is particularly easy to differentiate by the characters given by Zeller, who correctly diagnosed it as distinct, and it is very different from the larger, more pointed-winged, golden metallic San Domingo species described by Walker, which is nearer, although also very different from the following new species.

***Tortyra vividis* new species**

Labial palpi metallic fuscous, with a green and silvery sheen; tip of terminal joint somewhat darker, dull, not metallic. Antennae dilated and ciliate in the male, dark metallic bluish fuscous. Face golden.

Head and thorax strongly metallic golden purple. Forewings with ground color dull purplish brown finely irrorated with thin transverse lines of bluish white scales; dorsal half of basal third heavily overlaid with green metallic scales; transverse fascia before middle of wing metallic green, nearly straight, bordered on both sides with straight dark purplish brown lines, the inner one of which does not reach costa; the entire tornal triangle from apical third of dorsum to apex strongly metallic green. Hindwings dark dull brown with costal edge white on basal two-thirds and with cilia whitish fuscous. Abdomen dark brown. Legs dark purplish brown with metallic sheen, tarsi with faint whitish annulations.

Alar expanse.—17 mm.

Type.—U. S. National Museum Cat. No. 44153.

Type locality.—Sierra Maestra, East Cuba, 1,000 feet alt. (O. Querci Coll., January.)

Choreutis leptilonella new species

Labial palpi dark ochreous brown, much sprinkled with white scales and with inner side of second joint white. Antennae dark brown, annulated with silvery white. Face and head dark ochreous-brown. Lower face and underside of thorax silvery white. Thorax above dark ochreous-brown with a thin longitudinal central line of white scales and shoulders touched with white. The dark ochreous-brown ground color of the forewings nearly obscured by blackish-brown, golden ochreous, white, and silvery scales; from base of wing below costal edge a golden ochreous longitudinal line, edged above with metallic silvery scales; at basal third a broad, diffused, irregular, transverse cloud of white scales across the wing; at apical fourth a somewhat defined, narrow, outwardly angulated, white-dotted fascia, beyond which the tip of the wing is golden brown with sparse white single scales and groups of silvery metallic scales; two similar groups of silvery metallic scales at base of the wing, two larger ones on the middle of the wing, and a transverse streak of silvery scales on the end of the cell, edged on both sides with blackish-brown. Cilia bluish black. Hindwings dark blackish-brown with costal edge white and with a slight sprinkling of single white scales parallel to termen. Abdomen blackish-brown with narrow white annulations. Legs yellowish white with heavy black bars on tibiae and blackish-brown annulations on tarsi.

Female genitalia with rather short ductus, the first half of which is strongly chitinized and pouched, the other half thin-walled; bursa elongate ovate with two large, unequal, longitudinal, feathery signa. The five reared specimens before me are all females, hence I am, at present, unable to describe the male genitalia, which, however, undoubtedly will conform to the generic type, the species being in all other respects typical of the genus.

Alar expanse.—12 mm.

Type.—U. S. Nat. Museum Cat. No. 44154.

Type locality.—Santiago de las Vegas, Cuba.

Foodplant.—*Leptilon* sp. (*Erigeron*). (Otero No. 9511.)

FAMILY PLUTELLIDAE

Acrolepia cestrella new species

Second joint of labial palpi with well developed triangular tuft on underside, terminal joint longer than second, thickened with scales, apex bluntly pointed; light ochreous,

darker ochreous on outer side and sprinkled with black scales. Maxillary palpi short, porrected, dark ochreous. Face smooth, light ochreous. Thorax and forewings whitish ochreous strongly suffused with dark ochreous-brown and sprinkled with sparse black scales; an indistinct series of small, equidistant black streaks on costal edge; two triangular, nearly clear white dorsal spots, one at basal fourth, the other on the middle of the wing, the latter edged by a few black scales; a third smaller, white dorsal spot, just before the cilia, is also edged with black; a thin incomplete transverse line of black scales at apical fourth and a few white and black scales at apex; cilia dark ochreous brown, tipped with black. Hindwings dark fuscous with lighter cilia. Venation typical of the genus; forewings with 12 veins all separate, 7 to below apex, 1*b* furcate at base, 1*c* present in its entire length. Hindwings with 8 veins, 3 and 4 stalked, 7 parallel to 6.

Male genitalia typical of the genus, vinculum with very long, stout, anterior process; aedoeagus long, straight, bulbed at base; harpes slender, pointed; eighth segment with two long expansible hair pencils. Female genitalia with ductus rather short, looped, posterior half strongly chitinized; bursa oblong oval, without signum.

Alar expanse.—12–13 mm.

Type.—U. S. National Museum Cat. No. 55155.

Type locality.—Santiago de las Vegas, Cuba.

Foodplant.—*Cestrum diurnum*. (Otero No. 9500.)

This is the first record of this genus from the West Indies. The species is typical in all respects and resembles in coloration the European *A. assectella* Zeller.

Plutella maculipennis Curtis

The common cosmopolitan so-called diamond-back cabbage moth has not previously been recorded from Cuba, although it was expected to be present there. Mr. Harold K. Plank has sent me a series from Central Baraguá, Cuba. The species is occasionally injurious to cultivated cabbage, but feeds normally on outer wild *Cruciferae*.

FAMILY TINEIDAE

Tineola uterella Walsingham

Tineola uterella Walsingham, Proc. Zool. Soc. London, p. 165, 1897; Biol. Cent. Amer., vol. 4, p. 368, 1914; Forbes, Sci. Surv. Porto Rico, vol. 12, p. 154, 1930.

Tinea uterella Meyrick, Exot. Micros., vol. 2, p. 595, 1922.

Tinea allutella Meyrick (Rebel?), Exot. Micros., vol. 3, p. 552, 1930.

There are several very similar species of this group, which make similar cases found in houses and on tree trunks in the American tropics. Although describing this species in his West Indian paper, Lord Walsingham made his Brazilian (Pará) specimens the types of his *Tineola uterella* (Biol. Cent. Amer., vol. 4, p. 368, 1914), and I am not convinced that his West Indian (St. Thomas) specimens were truly conspecific. I am inclined to believe that a series in the U. S. National Museum reared from identical cases found in houses in Pernambuco, Brazil, represent the true *uterella* Walsingham. These average somewhat smaller in size and may eventually prove to be the *Tinea borboropis* Meyrick, from British Guiana (Exot. Micros., vol. 2, p. 275, 1919), also described from a mixed series, but afterwards (Exot. Micros., vol. 2, p. 595, 1922) restricted to three out of the eight original specimens, the balance of which Meyrick referred to *uterella*.

Pending reexamination of the types of these species, which alone can definitely clear their status, I retain here Walsingham's name for the commonest West Indian domestic species, which I have collected on St. Thomas and on most of the West Indian Islands. This, however, is the one which presumably eventually will require a new name and if so I propose the name *Tineola walsinghami*. The genitalia of the commonest West Indian and the Pernambuco species are very distinct.

Meyrick has subsequently (Exot. Micros., vol. 3, p. 552, 1930) identified Walsingham's *uterella* as identical with the *Tineola allutella* Rebel, described from the Canary Islands (Ann K. K. Hofmus., vol. 7, p. 270, pl. 17, fig. 3, 1892), but in view of our present knowledge of several closely similar American species of this group, it would be unwise to adopt this very doubtful synonymy and thus further complicate the nomenclature. Lord Walsingham, Mr. Durrant, and the writer discussed the possibility of this synonymy, while comparing a reared series from the Canary Islands with the Walsingham type series at Merton Hall in 1908, but agreed that Walsingham was correct in retaining the two species as distinct in his Teneriffe paper.¹

¹ Since this was written I have studied the types in the British Museum and through the courtesy of Mr. H. Stringer I have made genitalia slides also of authentic Teneriffe specimens of Rebel's species, enabling me to verify my conclusions. *Tineola uterella* Wals-

Meyrick has removed *uterella* from the genus *Tineola* to *Tinea*; the species is somewhat heterogeneous in both genera, both in genitalia and in the larval characters (the very long thoracic legs and the heavily chitinized thoracic plates; the larva of *Tineola biselliella* has no eyespots, those of most *Tinea* species have normal eyespots, that of *uterella* has only one); but the strong antennal pecten and the reduced maxillary palpi cause me to prefer retaining the species in *Tineola* as originally placed.

Dr. Bruner (9418) and Mr. Otero (No. 9799) have both bred this species, provisionally retained as *Tineola uterella*, from flat seed-shaped cases found on inside walls of houses.

So far as the writer has observed the species in the West Indies, the larvae are not cloth feeders, but live on insect remains caught in spiders' webs. The superficially similar Gelechiid, *Oesia maculata* Walsingham, occasionally reared from cases of the same kind as those of the *Tineola*, may prove to be parasitic or predatory on that species.

ingham applies to the Brazilian species, subsequently described as *Tinea borboropis* Meyrick; the West Indian species should be known as *Tineola walsinghamsi* Busck; aside from the more or less unreliable differences in color and size the genitalia give definite characters; the aedoeagus of *uterella* is strongly serrate exteriorly, that of *walsinghamsi* is smooth, and the harpes of the two species are quite distinct. The Teneriffe species *Tineola allutella* Rebel is quite distinct from the American species, though belonging to the same group. It has the aedoeagus smooth but has differently shaped harpes.

PLATE XXX

- Fig. 1. *Apotoforma rotundipennis* Walsingham, male genitalia.
Figs. 2-3. *Apotoforma rotundipennis* Walsingham, wing venation.
Fig. 4. *Amorbia phaseolana* Busck, male genitalia.
Fig. 5. *Gymnandrosoma pithecolobiae* Busck, harpe of male genitalia.
Fig. 6. *Ancyliis cordiae* Busck, male genitalia.
Fig. 7. *Ancyliis bauhiniae* Busck, male genitalia.

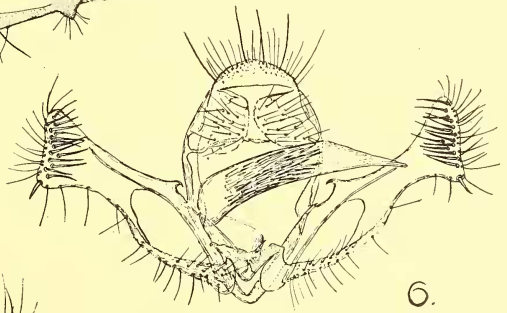
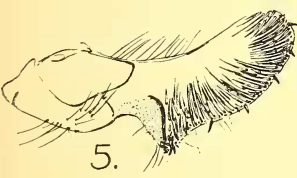
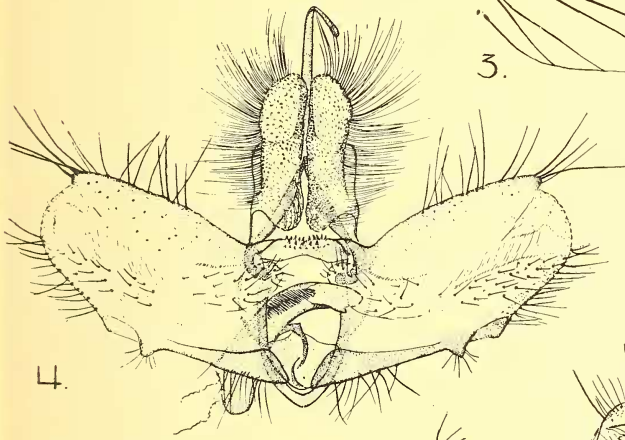
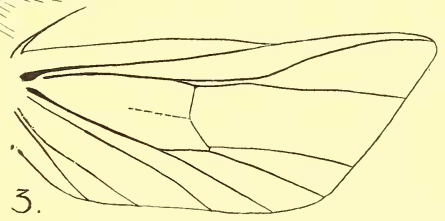
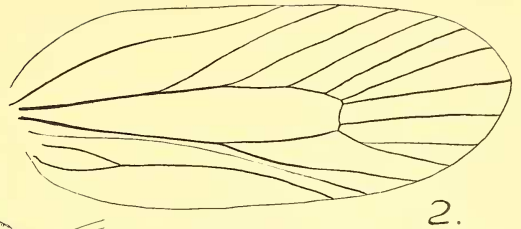
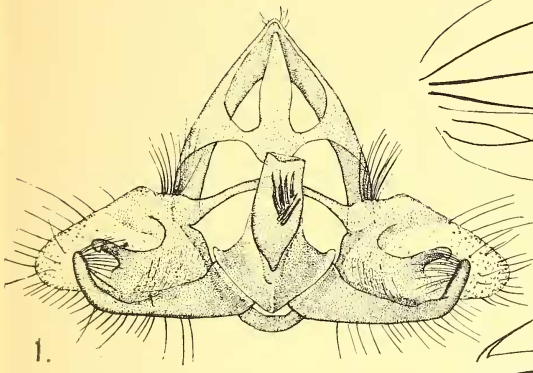


PLATE XXXI

- Fig. 1. *Nealyda bifidella* Dietz, male genitalia, front view.
Fig. 2. *Nealyda bifidella* Dietz, male genitalia, side view.
Fig. 3. *Aristotelia eupatoriella* Busck, male genitalia.
Fig. 4. *Aristotelia eupatoriella* Busck, aedoeagus of male.
Fig. 5. *Stenoma comma* Busck, male genitalia.
Fig. 5 a. *Stenoma comma* Busck, divided hair-scale of harpe.
Fig. 6. *Aristotelia eupatoriella* Busck, female genitalia.
Fig. 7. *Stenoma comma* Busck, female genitalia.
Fig. 8. *Aristotelia eupatoriella* Busck, scale pattern of hind wing.

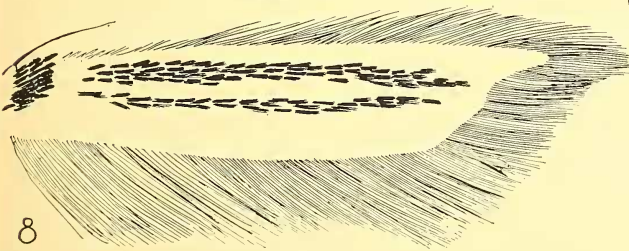
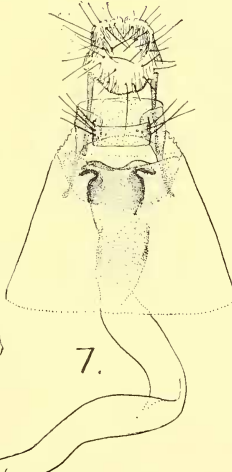
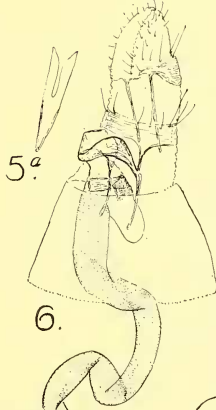
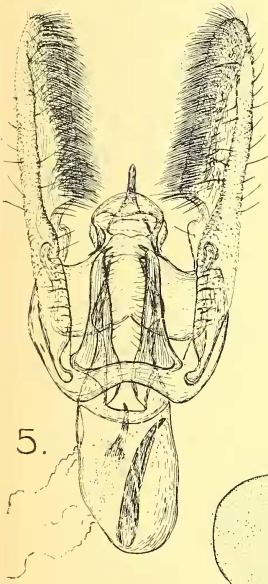
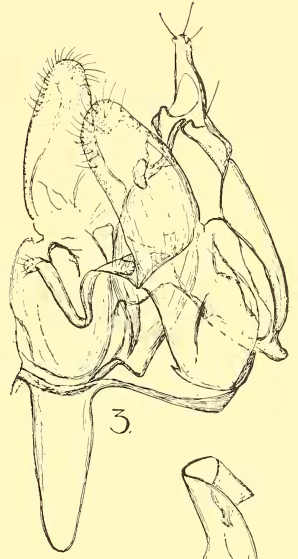
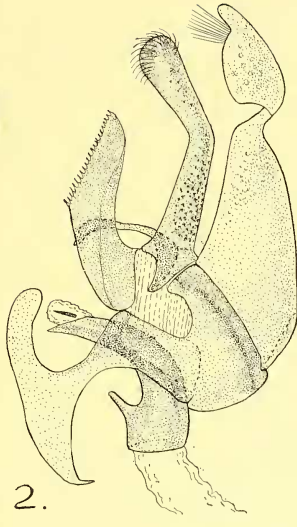
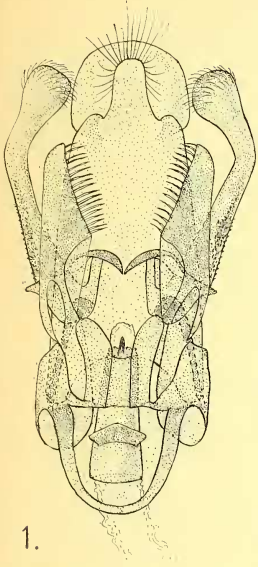


PLATE XXXII

Donacivola saccharella Busek

- Fig. 1. Male genitalia.
- Fig. 2. Aedoeagus of male genitalia.
- Fig. 3. Female genitalia.
- Fig. 4. Wing pattern.
- Figs. 5 and 6. Wing venation.
- Fig. 7. Pupa, in cocoon, lateral view.
- Fig. 8. Pupa, ventral view.
- Fig. 9. Pupa, dorsal view.

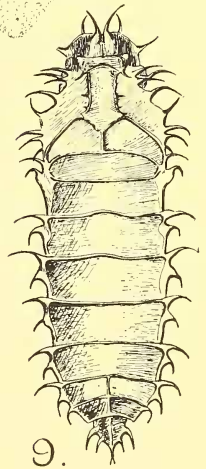
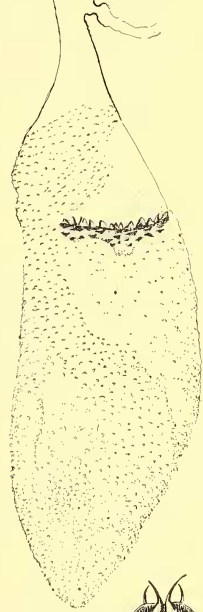
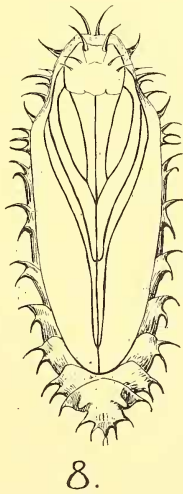
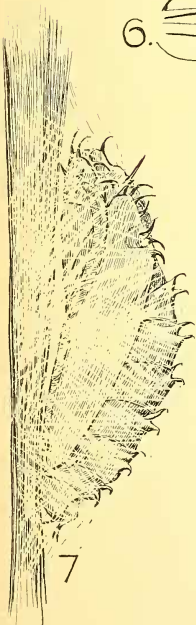
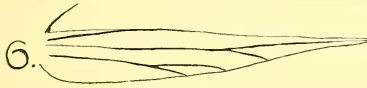
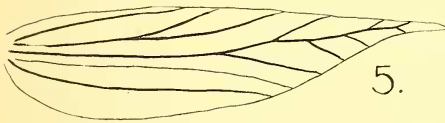
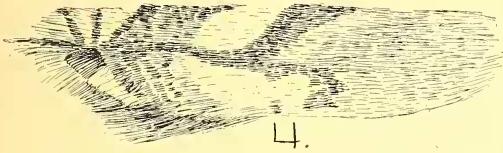
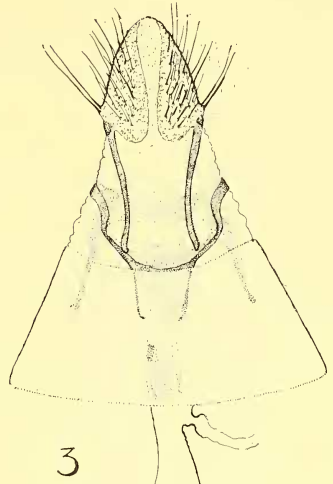
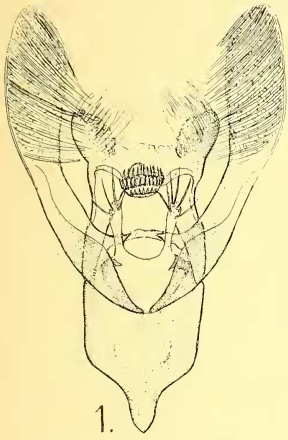


PLATE XXXIII

- Fig. 1. *Ethmia confusella* Walker, male genitalia.
Fig. 1 a. *Ethmia confusella* Walker, aedeagus.
Fig. 2. *Ethmia cubensis* Busek, male genitalia.
Fig. 3. *Ethmia hiramella* Busek, male genitalia.

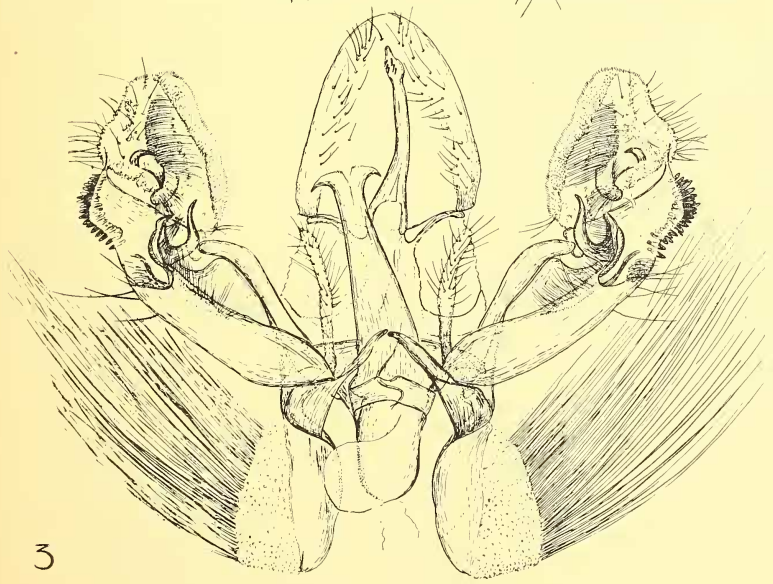
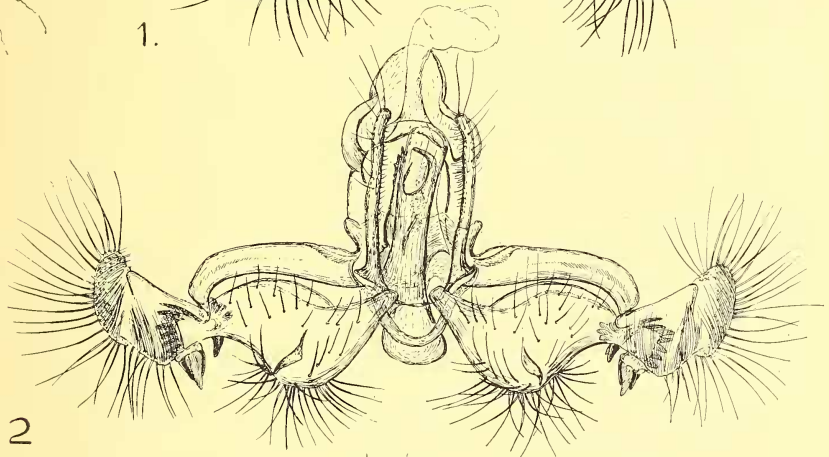
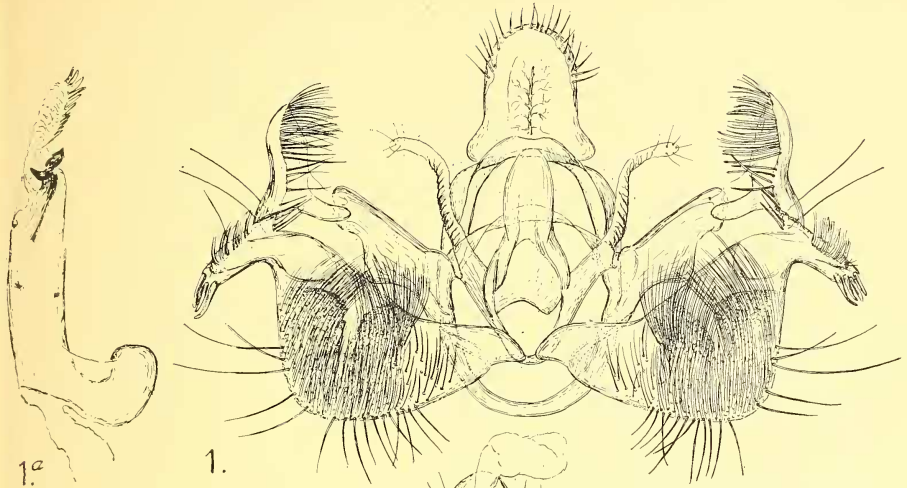
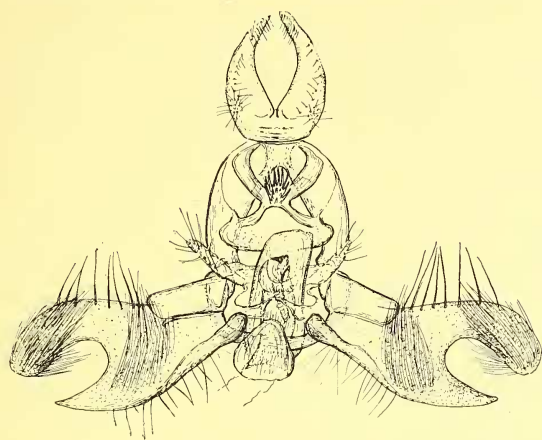
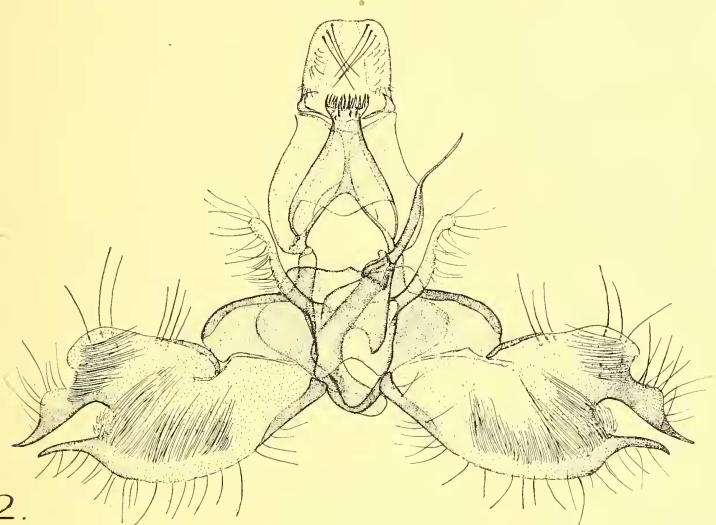


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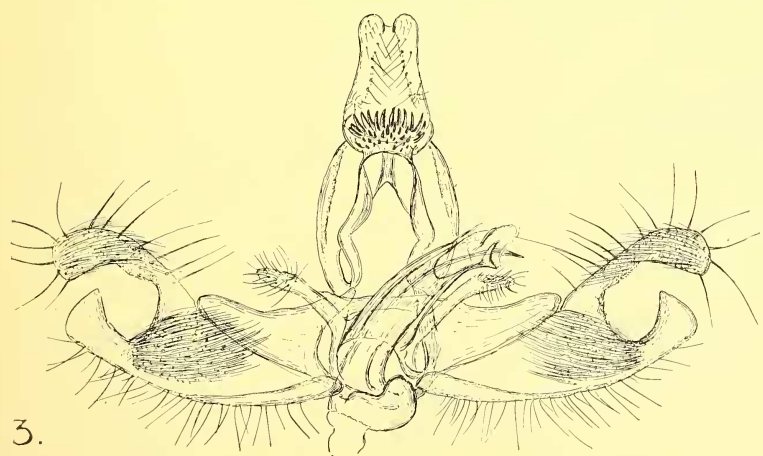
- Fig. 1. *Ethmia clarissa* Busck, male genitalia.
Fig. 2. *Ethmia subsimilis* Walsingham, male genitalia.
Fig. 3. *Ethmia nivosella* Walker, male genitalia.



1.



2.



3.

PLATE XXXV

- Fig. 1. *Ethmia scythropa* Walsingham, male genitalia.
Fig. 2. *Ethmia ornata* Busck, male genitalia.
Fig. 3. *Ethmia exornata* Zeller, male genitalia.

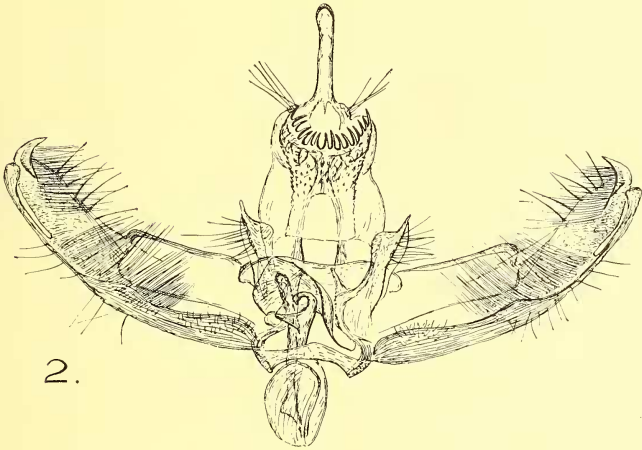
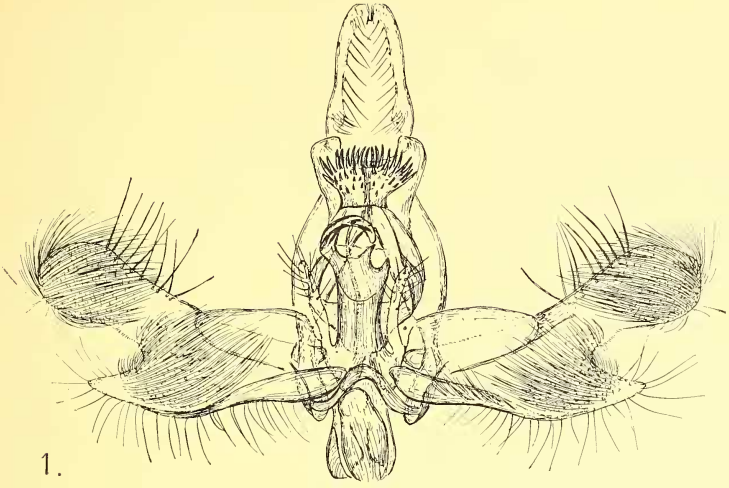
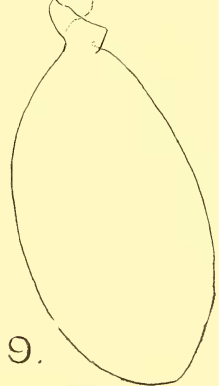
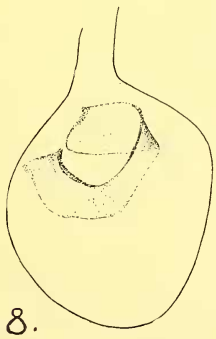
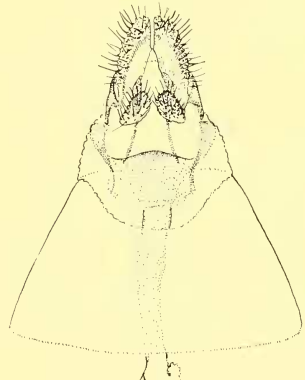
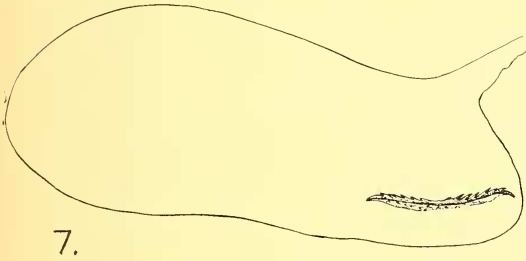
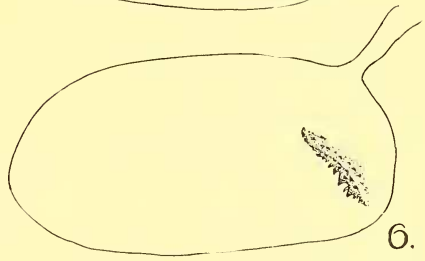
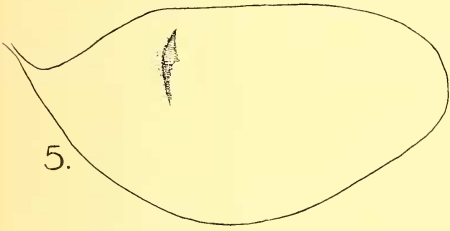
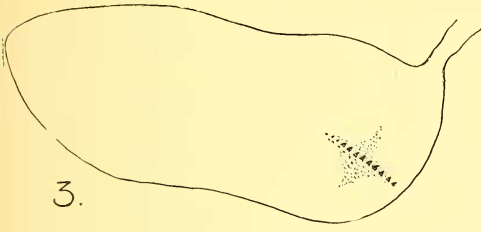
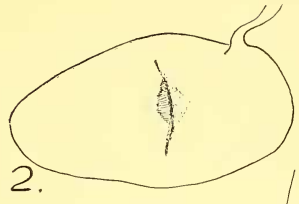
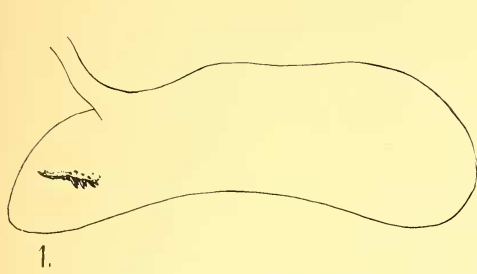


PLATE XXXVI

Female genitalia

- Fig. 1. *Ethmia nivosella* Walker.
- Fig. 2. *Ethmia submissa* Busck.
- Fig. 3. *Ethmia cubensis* Busck.
- Fig. 4. *Ethmia oterosella* Busck.
- Fig. 5. *Ethmia subsimilis* Walsingham.
- Fig. 6. *Ethmia scythropa* Walsingham.
- Fig. 7. *Ethmia confusella* Walker.
- Fig. 8. *Amorbia phaseolana* Busck.
- Fig. 9. *Apotoforma rotundipennis* Walsingham.



ENTOMOLOGICA AMERICANA

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